

The

Second Edition

MULTIPLAYER CLASSROOM

Designing Coursework as a Game

Lee Sheldon



CRC Press
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The Multiplayer Classroom



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For Graham and Emma
With all my love, my gentle, courageous children.



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Contents

Preface, xvii

Acknowledgments, xxvii

Author, xxix

SECTION 1 Introduction

QUEST 1 ■ Good Morning, You All Have an F. 3

OPENING: THE SLIDE 4

MIDDLE GAME: THE SHIFT 7

ENDGAME: THE BOOK 7

QUEST 1 WALKTHROUGH 10

REFERENCES 10

QUEST 2 ■ Games in the Classroom 11

EDUCATIONAL SOFTWARE 13

EDUCATION VERSUS ENTERTAINMENT 14

QUEST TO LEARN 17

GAME-BASED LEARNING SOFTWARE 18

QUEST 2 WALKTHROUGH 20

REFERENCE 20

SECTION 2 ■ **Multiplayer Classrooms**

QUEST 3 ■ IU Theory and Practice of Game Design	23
FLASHBACK: SUMMER OF 2009	23
STAY FLEXIBLE	24
SYLLABUS	29
GRADING PROCEDURE	33
CLASS	34
ZONES	34
AVATARS	37
PEER REVIEW	40
PEER REVIEW SECRET BALLOT	40
QUEST 3 WALKTHROUGH	44
CASE STUDIES INTRODUCTION	45
CASE STUDY 1	46
Waunakee High School	46
<i>Introduction</i>	46
<i>Alliances, Nations, and Guilds</i>	47
<i>XPs and Levels</i>	47
<i>Assignments</i>	48
<i>Challenges</i>	48
<i>Boss Fights</i>	49
<i>Tokens</i>	50
<i>Side Quests</i>	52
<i>Achievements</i>	52
<i>Outcomes</i>	52
<i>Next Year</i>	52
REFERENCES	53
QUEST 4 ■ IU Multiplayer Game Design	55
GRADING AND ATTENDANCE	56
SYLLABUS	57

ROLES	62
MMOS AND COMMUNITY	62
MOTIVATION	63
MIDTERM EXAM	64
QUEST 4 WALKTHROUGH	67
CASE STUDY 2	68
Blend English Institute	68
Introduction	68
Core Philosophy	68
Rewards	69
Procedure	70
Results	71
Positives	71
Negatives	71
Other Classes	72
Other Thoughts	72
Year 4 and the Future	72
REFERENCES	74
QUEST 5 ■ RPI Introduction to Game Design	75
THEORY AND DESIGN	75
2010 FALL SYLLABUS	76
BRAND NEW PARTS TO THE SYLLABUS	81
CLASS	84
THE PROTOTYPE	93
QUEST 5 WALKTHROUGH	95
INTERMEZZO	96
Observations from Marie-Pierre Huguet	96
<i>Beyond the Game</i>	96
REFERENCES	101
CASE STUDY 3	102
St Patrick's Fine Arts Elementary School	102

About the Classroom	102
How Quest Ion VI Came to Be	103
Rules of the Game	104
Permeating the Classroom	105
Saving the King	106
Results	107
QUEST 6 ■ RPI Designing Interactive Characters (Valeria 1)	109
<hr/>	
A NEW SYLLABUS FOR A NEW GAME	109
USING BACKSTORIES	116
DESIGN CONSISTENCY	118
HOME SWEET HOME	118
THE GEOGRAPHY OF VALERIA	119
MESSAGES FROM THE UNKNOWN	122
PREPARATION FOR THE FINAL PROJECT	123
PRESENTATION QUESTS	123
ANOTHER MESSAGE FROM THE UNKNOWN	124
MIDTERM PREP PVP	125
MIDTERM BOSS MOB (FROST LIZARD)	127
THE PROBLEM WITH THE SNOW LEOPARD	128
QUEST 6 WALKTHROUGH	131
CASE STUDY 4	132
Solent University	132
Introduction	132
Implementing a Game System for an HE Unit	133
Running the RP Sessions	136
Postmortem and Data	138
Conclusions, Final Impact	139
REFERENCE	140

QUEST 7 ■ More RPI Quests: Interactive Characters & Narrative (Archipelago 1)	141
SYLLABUS	142
GAME: ETHOS	143
Guild: Average Americans	143
GAME: LOST FRONTIER	143
Guild: Project Louder	143
GAME: MYSTIC ISLANDS	143
Guild: The Island of Misfit Toys	143
GAME: THE NEWCOMERS	143
Guild: God Tier	143
GAME: SHADES OF GRAY	144
Guild: Dai Lobster	144
GAME: WATERBOUND	144
Guild: Segfault	144
CLASS	146
RPI SPRING 2012	148
Writing for Games I	148
RPI FALL 2012	148
Writing for Games II	148
RPI SPRING 2013	149
Video Game Level Design	149
RPI FALL 2013	150
Character and Story for Games (Archipelago 2)	150
RPI SPRING 2014	152
Writing for Games I	152
RPI FALL 2014	153
Character and Story for Games (Victorian London)	153
RPI SPRING 2015	154

Video Game Level Design	154
QUEST 7 WALKTHROUGH	155
CASE STUDY 5	156
Azay-le-Rideau Rural Community School	156
Introduction	156
Operating System and Requirements	157
The Players	157
Project: Multiplayer	158
<i>Before the Game</i>	158
Mechanics	158
Feedback	163
Conclusion	164
QUEST 8 ■ WPI Writing for Games I: Characters (Valeria 2)	165
<hr/>	
WRITING FOR GAMES I: CHARACTERS (VALERIA 2)	166
The Syllabus	166
Raid Strategies	168
CLASS	171
QUEST 8 WALKTHROUGH	173
CASE STUDY 6	174
Valentine High School	174
Introduction	174
What I Learned from Early Iterations	175
Socialization through Team Building	178
Choice	179
Learning through Games	180
Conclusion	181
QUEST 9 ■ WPI Writing Characters for Interactive Media & Games (Sanctuary of the Sun)	183
<hr/>	
SYLLABUS	184
Sanctuary of the Sun	185

QUEST 9 WALKTHROUGH	193
CASE STUDY 7	194
Florida Gateway College	194
Introduction	194
<i>Learning Activities</i>	198
Results	198
Future Thoughts	200
CASE STUDY 8	201
Columbuskolen	201
Introduction	201
Humble Beginnings	202
Transition	204
The Social Space as a Game	204
Curriculum as a Game	205
Results	208
The Road from Here	209
REFERENCE	209

SECTION 3 ■ Game Design and Development 101

QUEST 10 ■ Identifying Learning Objectives and Student Needs	213
HOW STUDENTS LEARN	213
HOW GAMERS LEARN	214
QUEST 10 WALKTHROUGH	218
REFERENCES	218
QUEST 11 ■ Student Demographics	221
AGE	221
GENDER	223
INCOME LEVEL	224
QUEST 11 WALKTHROUGH	225
REFERENCE	225

QUEST 12 ■ How Games Are Designed **227**

THE TEACHER AS GAME MASTER	228
PREPRODUCTION	230
BEGIN WITH THE THEME	232
THE GAME'S STORY	233
QUEST 12 WALKTHROUGH	236
REFERENCE	236

QUEST 13 ■ Production **237**

PREP	238
DESIGN	239
COLLECTING ASSETS	243
ALPHA TESTING	245
BETA TESTING	245
QUEST 13 WALKTHROUGH	246

SECTION 4 After the Launch

QUEST 14 ■ Playing the Game **249**

LORE	250
RULES	251
SCORING	251
STAYING FLEXIBLE	252
POSTMORTEM	254
QUEST 14 WALKTHROUGH	255

SECTION 5 After This Book

QUEST 15 ■ Designing the Future **259**

REFERENCES	264
------------	-----

QUEST 16 ■ Resources	265
GAME-BASED LEARNING	265
HOW TO SUCCEED IN GAME DESIGN	265
APPLIED GAMES (AKA SERIOUS GAMES)	266
RELATED TO GAME DESIGN (GAME DESIGNERS READ THESE BOOKS)	266
WRITING GAMES	266
ABOUT GAMES	266
ABOUT THE FUTURE	267
CONFERENCES	267
ORGANIZATIONS	267
QUEST 16 WALKTHROUGH	268

APPENDIX **First Edition Case Studies**

APPENDIX A ■ FIRST EDITION CASE STUDY 1,	271
APPENDIX B ■ FIRST EDITION CASE STUDY 2,	279
APPENDIX C ■ FIRST EDITION CASE STUDY 3,	289
APPENDIX D ■ FIRST EDITION CASE STUDY 4,	295
APPENDIX E ■ FIRST EDITION CASE STUDY 5,	303
APPENDIX F ■ FIRST EDITION CASE STUDY 6,	311
APPENDIX G ■ FIRST EDITION CASE STUDY 7,	317
APPENDIX H ■ FIRST EDITION CASE STUDY 8,	323
INDEX,	329



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Preface

SOME OF THE TERMINOLOGY used in this book, while familiar to professional game developers, may not be as familiar to educators, even those who may have introduced a video game into a class or grown up playing them. So, with the forbearance of my fellow game designers, I'm going to define the terminology we use on a daily basis.

Now for three warnings. First, this book is a memoir, a voyage of discovery, and an introduction to a method of teaching based on game design principles and developed over time. This book is intended for anyone to read. It is not an academic paper only for other academics. It is the story of a quest I have been on for over a decade. You will witness concepts evolve from class to class as I explore and experiment.

Second, if at any time you want to skip directly to designing your own multiplayer classroom, head straight to Section Three: Game Design and Development 101. However, you run the risk of achieving the same result as the parable of the three blind men and the elephant. Your elephant might turn out looking like a snake. I urge you to study the underlying concepts first. Up to you!

Third, if you have picked up this book with the idea that it will help you to include video games in your curriculum, put it down now. Walk away.

The class is the game, and the classroom is the game board. A multiplayer classroom can be created without buying software. It can be played without computers. It doesn't need electricity or textbooks or a desk. It can be played anywhere. If teachers have never played a video game in their lives, they can design a course as a multiplayer classroom.

DEFINITIONS

I will separate definitions like this throughout the text to spare readers from having to continually thumb through a glossary at the back or an eBook to find the meaning of the word far removed from its context. Hopefully, in this way both author and reader will figuratively and literally remain on the same page.

Still, multiplayer classrooms can get very involved, so first of all heed this advice: when you are ready to experiment on your own, you do not have to leap into the deep end with a class that is a full on multiplayer classroom like *Sanctuary of the Sun* (Quest 9). It took me a decade to get there. Try as much or as little of the multiplayer classroom techniques as you feel comfortable with. If all you do is wade in and change your grading system and allow students to only acquire points, never lose them, you will see results. You can always add more as you grow more confident. Look for another easy and sneaky tip in Quest 3.

I have been asked many times if a multiplayer classroom might only work to teach about games or would only work at the college level. Many of my classes *are* meant to teach various aspects of game production and game studies, and all are at the college level. That's what I do. As you will see from the case studies, however, the multiplayer classroom is not only for teaching about games and the post-secondary courses are outnumbered by K-12.

At the time the first edition of this book was published there was little scholarly research on the efficacy of game-based learning. In the beginning I had to rely on my own experience and anecdotal evidence when I gave talks on the multiplayer classroom. But soon Chris Haskell and Liz Dawley at Boise State University, co-inventors of 3D GameLab (now Rezzly), published findings of a wide-ranging study of what they called quest-based learning with some eye-opening statistics. Here are a few:

- The study involved over 13,000 students and over 900 teachers in 15 countries.
- Traditional approach to education success rate: 71% of students received an A, B, or C.
- Game-based approach success rate: 93% of students received an A. 93% without a B, C, or D.
- Students completed 2X the curriculum in 30% of the time.

Other early explorers in this space include Dr. Bob De Schutter, a game design professor from Miami University (who has a fascinating new game out called Brukel); professors Andrew Stott and Carmen Neustaedter from Simon Fraser University and David Leach at the University of Victoria, both schools in British Columbia, Canada, and Paul Darvasi, a high school teacher at Royal St. George's College in Toronto, Canada. In 2016 "Game-Based Learning and 21st Century Skills: A Review of Recent Research" by Meihua Qian and Karen B. Clark cited 137 papers. It's not so lonely out there anymore.

Today, multiplayer classrooms can be found at any grade level from kindergarten to graduate school, as well as in adult education, in the corporate world, the military and government. Will it work for every subject? There is no reason not to think so. Give it a try.

I began writing the first edition of this book over nine years ago. Game-based learning and its problematic cousin, gamification, were only beginning to catch the attention of educators.

Why do I differentiate between game-based learning and gamification? Most people consider them synonymous, and certainly gamification has polished its act somewhat, if not the awkward word that defines it. Gamification began, and often continues today as simply appearing to mimic game-like structures and borrowing game terminology. However underneath, it is little more than a textbook often complete with multiple choice questions thinly disguised in its digital incarnation today.

This is not to say that some aspects of old-style gamification are not worth including in game-based learning. You'll notice as you read this book that my first classes were little more than obvious gamification. Experience points (XP) are a perfectly acceptable way to track player progress. I will highlight others. Leaderboards, as you will see, are more problematic.

In 2015 Steven Isaacs, a middle school teacher in New Jersey, published a lucid article on the Association for Supervision and Curriculum Development (ASCD) In Service website called *The Difference between Gamification and Game-Based Learning*. It includes an easy-to-understand chart with a side-by-side comparison of gamification and game-based learning. It is worth a look.

I have continued to design classes as multiplayer games in those nine years and have learned so much that a new edition of this book became a necessity. In the first edition I included eight case studies from educators who taught multiplayer classrooms from elementary school to college and from Louisiana to Hawaii. In this edition I have included eight more recent examples of multiplayer classrooms that teach a host of topics at all educational levels in the United States and abroad. The multiplayer classroom has gone international. The original eight case studies can be found in the appendix.

Another belief, difficult to shake, is that at best games are frivolous time wasters, and at worst they, especially video games, are a dangerous influence on society today. This idea stems from how cultures often view new arrivals as alien invaders that suddenly appear on the horizon and grow ever larger until they are among us, challenging our complacent lives. These may be anything from people to technology to ideas. Technology has seen many such aliens invade us over the centuries. These include printing, photography, electricity, the telephone, radio, movies, television, and the Internet to name just a few.

This is not to say new technologies are without their darker side. Can you say "Robocalls?" Eventually, even with inevitable dangers, a general acceptance occurs that can overcome fear and become tolerance and ultimately enthusiasm as the new arrival's

LEADERBOARD

A scoreboard used to keep track of and display the standing of competitors in a sports contest. It's most often associated with golf. PvP (Player vs. Player) video games such as e-Sports often post the results of competitions online.

merit becomes clear. This will never be true of all video games any more than it's true of any media. Some books, movies, plays, and television remain outliers. But video games have become a huge slice of our entertainment and our culture and have shown themselves worthy enough to add an entirely new dimension to learning. The admonition to storytellers for generations has been "Show, don't tell." Video games have turned that on its head. Today we can say, "Do, don't show or tell." That third dimension of immersion is courtesy of games, and, not so strangely, education.

Remember that while multiplayer classrooms may have their roots in, they can be played anywhere. A flower-studded field on a hill beneath a poetically blue sky can serve as the place where the game is played, and learning can be found.

In September of 2009, I had no idea I would be compelled to write a book called *The Multiplayer Classroom*. I was teaching my first class as a multiplayer game in the style of a commercial MMO (Massively Multiplayer Online).

At the time of the first edition of this book, *World of Warcraft* was the most successful MMO, so that game inspired me while I looked for how to describe my new way to teach. Since my first classroom game would be played by no more than 40 students, the word "massively" didn't really apply. Since it was played in the real world instead of over the Internet, the word "online" was out of place as well. That would leave me with the totally useless acronym of "M." This book is not named after James Bond's boss. So, I added a "C" and called it *The Multiplayer Classroom*.

As that semester progressed, I began to see the fun of learning the students were experiencing and how much more fun *teaching* felt to me. When grades improved and class attendance headed toward a record high, I began to ask myself, "Why haven't we been designing classes as video games for a long time now?"

After all, anyone born after the mid-1970s is of the gamer generation; in the same way I was of the television generation. They grew up with video games already established as viable commercial products, and as products capable of teaching as we will see in Quest 2. When players were ready to go online, the Internet magically appeared. When they wanted to expand their social networking, Facebook arrived. And when they wanted to carry their

MMO: MASSIVELY MULTIPLAYER ONLINE

A game played over the Internet by many players in any part of the world. MMO is a shortened version of MMOG (Massively Multiplayer Online Game), which is a shortened version of MMORPG (Massively Multiplayer Online Role-Playing Game). It is a type of game still in search of a reasonable acronym. MMO has now been joined by multiplayer video games with a new acronym: MOBA (Multiplayer Online Battle Arena). These include *League of Legends*, *DOTA*, and *Fortnite*.



FIGURE P.1 Beyond Facebook: The future of pervasive games.

games in their pockets and purses along with their cell phone and an Internet connection, smartphones made what was already possible...fun.

This generation sees games all around them. As Jesse Schell points out in his talk, “Beyond Facebook: The Future of Pervasive Games” (2010), there are games everywhere we turn (Figure P.1).

The gamer generation is part of a society used to collecting points for airline mileage, points for using a particular gasoline brand, Open Table dining points, and so on; in the same way they collected gold stars in kindergarten. The idea here is simply that the gamer generation takes these things in stride. They expect it even if they aren't hardcore gamers themselves. The aliens are settling in fine on Maple Street.

PERVASIVE GAME

A game where the line between game and reality blurs to the point where it is difficult to distinguish one from the other.

What got me to this point? Why was I personally moved to design a class as a game? I started out in Hollywood and New York writing and producing television. In 1982, I was preparing to write a pilot for a potential TV series that involved a family able to travel through video games on their big screen TV to other planes of existence. I had never played a video game in my life. Interested in collaboration, the production companies involved, Tomorrow Entertainment and Procter and Gamble, sent me to Atari, the most successful maker of video games at that time, to learn more about them.

Their game console, the 2600, was a runaway success. They gave me one and a stack of games to play. In the interests of research of course, I decided to give them a try.

That TV show was never made, but soon after using a dedicated word processor on a TV show I wrote for called *Tucker's Witch*, I bought my first IBM PC, word processing software called Wordstar, and a handful of the first computer games including *Microsoft Adventure*, a rebranded text adventure originally known as *Colossal Cave*, and *Ulysses and the Golden Fleece*, another adventure with graphics and a rather jumbled view of mythology!

In 1994, I left Hollywood and became a professional game writer and designer. In 2006, while still making commercial video games, I accepted a position as an assistant professor at Indiana University, teaching students how to make them.

One other significant event occurred at IU. In 2008 I began to design the first of a series of alternate reality games (ARGs): *The Skeleton Chase*, *Skeleton Chase 2: The Psychic* (Figure P.2), and *Skeleton Chase 3: Warp Speed*.

The first two games in the series were funded by a grant from the Robert Wood Johnson Foundation. The third was funded by Coca Cola. I condensed the seven weeks of gameplay from the second game into two and half days to provide a new approach to team building and learning new technologies for Coca Cola executives from North Africa.

For the RWJ grant, we tested the efficacy of using a game as a fitness intervention. At a time when many “fitness” game grant proposals were focused on Dance Dance Revolution and the Wii Fit balance board, we created a reason for students to get out into the sunshine (sometimes rain) in large numbers and to run around while they were doing it. For two seven-week periods, we sent students racing all over the huge IU campus and surrounding town of Bloomington. We connected this physical activity to going on quests, solving puzzles, races and other competitions, and even a full-fledged narrative. I did not know it then, but we were creating the seeds from which the multiplayer classroom would grow.

ALTERNATE REALITY GAME (ARG)

A type of pervasive game that uses the real world as a platform, often involving multiple media and game elements, to tell a story that may be affected by participants' ideas or actions.



FIGURE P.2 Skeleton Chase 2: The Psychic.

The designing and running of these games immediately taught me two important lessons:

- Games as compelling as video games can be designed to be played in the real world
- Games played in the real world in real time demand a tremendous flexibility, just like teaching. You can't program real people to do what you want them to do; in the same way you can program NPCs (non-player characters) in a video game, and you can't depend on bending things like the weather to match your design. You must be ready for all the little surprises real life can throw at you, and write and design on the fly.

NPC

An NPC is a non-player character, a fictional character designed to inhabit the world of the game.

I think the experience with the ARGs, the last of which concluded the summer I began designing my first class as a game, is what finally made me realize that since anywhere can be a game board, why not a classroom? It's fitting that the companion book to this one, *The Multiplayer Classroom: Game Plans*, begins with the design document for *Skeleton Chase 2: The Psychic*, and concludes with the design document for *Sanctuary of the Sun*, the most recent multiplayer classroom.

Back to this book. What are the major changes from the first edition? I have learned much more about designing a multiplayer classroom in the ensuing years. The classrooms have ripened from those explored in the first edition. The biggest change by far is my focus in later classes on narrative as much as gameplay and the process I now call collateral learning.

It seems peculiar to me that it took me so long to figure out the importance of narrative considering I've been a professional writer my entire adult life, first in Hollywood, then video games, and now books.

I have made plenty of mistakes in the ensuing years. So have others creating their own multiplayer classrooms, whatever they decide to call them. I do not intend to hide those mistakes. In fact, much like those intrepid volunteers in the dunking tank at school fairs, my falls from grace will be in plain view. In this way, hopefully, you can avoid your own. Look for them. They'll be impossible to miss. I'll be dripping wet.

I will leave you with two final thoughts before we begin. First, I have added a new feature throughout this edition of the book. Called *Your Classroom*, it will help you to translate what you read here to your own class. Some ideas you may already be using in a form that fits the subject you are teaching.

Second, you are on a quest to discover more about the multiplayer classroom so in this book chapters will be called Quests. A list of hints on how to solve quests in games is called a walkthrough. So, you will find a walkthrough at the end of each chapter to remind you of the most important steps in your quest. This will be familiar as a listing of key concepts found at the end of chapters in many textbooks. Here is your first walkthrough!

COLLATERAL LEARNING

Collateral learning occurs at the convergence of two distinct and undeniable forces: gameplay and storytelling, and the human attributes of curiosity and imagination. It's learning that occurs while you are so caught up in something else—like characters in a book or a suspenseful film—you almost don't realize you *are* learning. Students learn because they want to find out what happens next.

PREFACE QUEST WALKTHROUGH

- Definitions for terms used are in the body of the book, not separated in a glossary at the end.
- The class is the game, and the classroom is the game board. (Fundamental Concept)
- Gamification and game-based learning are not necessarily synonymous.
- This book is a voyage of discovery, detailing the process of how the multiplayer classroom was born and grew and the mistakes I learned from.
- In this book the emphasis is on the classes I taught. All were post-secondary classes on games.
- Today, multiplayer classrooms can be found at any grade level from kindergarten to graduate school, as well as in adult education, in the corporate world, and the military and government.
- Games have been used to teach for centuries.
- In video games, the primary way players learn is from making mistakes. (Fundamental Concept)
- Games as compelling as video games can be designed to be played in the real world. (Fundamental Concept)
- Games played in the real world in real time demand a tremendous flexibility, just like teaching. (Fundamental Concept)
- Collateral learning is learning that occurs while you are so caught up in something else, you almost don't realize you *are* learning. Students learn because they want to find out what happens next. (Fundamental Concept)

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I want to also pay tribute to my brave student assistants at IU, RPI, and WPI without whom teaching would have been much more of a chore. I'm especially indebted to Leo

Bunyea who enthusiastically dove into both of my multiplayer classrooms at WPI and the Global Classroom with Skövde University. Without his contributions to these classes and other projects they would never have succeeded as well as they did.

And last, but by no stretch of the imagination least, I'm delighted to extend a very special thank you to Erin Glasheen-Sheldon, who had both me and this project suddenly drop from the clear blue sky into the middle of her life. She faced this disruption with support, encouragement, and faith that kept me going through what seemed at times an impossible task; even at the expense of her own writing, which I have no doubt will one day be found alongside this volume on our bookcase.

To everyone who aided and abetted this undertaking over the past decade: you are all l33t hax0rs!

Author

Lee Sheldon began his writing career in television as a writer-producer, eventually writing more than 200 shows ranging from *Charlie's Angels* (writer) to *Edge of Night* (head writer) to *Star Trek: The Next Generation* (writer-producer). Having written and designed more than forty commercial and applied video games, Lee spearheaded the first full writing for games concentration in North America at Rensselaer Polytechnic Institute and the second writing concentration at Worcester Polytechnic Institute where he is now a professor of practice. A companion book to this one, *The Multiplayer Classroom: Game Plans* (CRC Press, forthcoming) will feature fully annotated design documents from his more ambitious multiplayer and ARGs including the first online multiplayer classroom. Other games covered teach physical fitness, Mandarin and Chinese Culture and cybersecurity, a game where students must defend their university against attacks originating on the dark web. The third edition of Lee's book *Character Development and Storytelling for Games*, a standard text in the field, is also forthcoming from CRC Press. Lee is a regular lecturer and consultant on game design and writing in the United States and abroad. These days Lee is a contributor to the Extra Credits Youtube Channel. His most recent commercial game, the award-winning *The Lion's Song*, is currently on Steam.



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SECTION 1

Introduction



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Good Morning. You All Have an F.

“Good morning. Welcome to the first class of the semester. Everyone in this class is going to receive an F”.

One thing I will always regret when I look back on that first day of a new way of teaching is that I didn't have somebody with a camera standing by to record the expressions on the students' faces when I said that. The mixture of disbelief, shock, fear, growing umbrage, and more was something to behold. I had a fleeting thought: What if ... what if I just walked out after delivering that first line?

At this, the beginning of my third year in the halls of academe, I still wasn't certain I wanted to be a college professor. There was much to like about the job. My colleagues first and foremost; the intellectual engagement and discussion (something that wasn't always available during my years in Hollywood); the opportunities for me to learn; and the Bloomington campus of Indiana University itself, regarded as one of the most beautiful in the United States and rightly so.

My office looked out on the Arboretum, the green expanse of grass, gurgling stream, trees, and flowers crisscrossed by walkways at the heart of the campus. To my right was Wells Library. Beyond the Arboretum loomed more monolithic buildings built with the limestone that region of southern Indiana is noted for. The bucolic scene that often captured my attention was once the university's stadium, the site of the Little 500 bicycle race featured in the film *Breaking Away*.

Not only did the Arboretum welcome my wool-gathering when I turned bleary-eyed from the computer to refresh both sight and mind, but it also served as a primary location

in the first ARG I designed while at IU. That red clock with its eclectic repertoire of chimes, those stone gazebos, bronze statuary—all would take on greater significance in the story of mystery and mayhem we told. They were the unrecognized beginning of the multiplayer classroom.

Not all aspects of college life were as welcome to this refugee from the real world. The bureaucracy can grind as slowly as a limestone wheel, crushing ideas and new initiatives beneath its weight. Faculty meetings at times reduced my reasonable, intelligent, witty human colleagues to priests droning in what seemed like a dead language with an arcane liturgy only the academy understands. And, of course, grading. Grading. I'm haunted by the first class I ever taught at IU; that attempt at grading where I gave letter grades based not on percentages, but feelings, and then tried desperately to translate them into real numbers. My poor students. The tears. The horror.

I didn't walk out after announcing everyone had an F that first day of class in my third year. Although some students might disagree, I'm not quite that sadistic. Instead I continued, "Unless ..."

Unless they embarked on quests, defeated mobs, and crafted goods from raw materials that would help them earn their way through the brave new world they had just entered. It might look like a classroom, but it was not. And what they experienced there would count, just as it did in a video game. They could level up. Even to an A.

There was an immediate and perceptible shift in the room from shock to interest, and something more: challenge. The gauntlet was thrown right back at me.

MOB

Short for "mobile," the word coined by Richard Bartle, along with Roy Trubshaw, the two creators of the first MUD (Multiuser Dungeon), the precursor to today's Massively Multiplayer Online games (MMOGs). It means any opponent controlled by the computer, rather than another player in an MMO.

OPENING: THE SLIDE

In chess the opening sets the tone for the entire game that will follow. Once the opening moves have been made, the character of the game is established as surely as fate. Win or lose, each player's role is clearly defined.

On February 19, 2010, the chairman of the Department of Telecommunications, Walter Gantz, and I received an email from Jocelyn Bowie, the Director of Communications and Marketing for the Indiana University College of Arts and Sciences. Jocelyn had come across a news report written by Kris Graft (2010) from *Gamasutra* magazine, a magazine for video game developers.

The talk I mentioned in the Preface, “Beyond Facebook: The Future of Pervasive Games,” given at the Design Innovate Communicate Entertain (DICE) Summit by Carnegie-Mellon professor Jesse Schell, had a surprise in store for us (Figure 1.1). Two-thirds of the way through it, my smiling face suddenly appeared on a PowerPoint slide.

The DICE Summit is held once a year by the Academy of Interactive Arts and Sciences to recognize outstanding achievements and contributions in the gaming industry. As Bryan Ma (2010) described it in a later *Gamasutra* article, Professor Schell’s talk “starts on the topic of the rise of social media games and moves to discussing convergence of social/new media, technology, entertainment, and so on through game-like constructs; essentially, gameplay being incorporated into everything else we do.” The gamification of society that had been going on underground, yet in plain view for years, suddenly became a hot topic with this one talk. And much to my surprise, I was participating in it.

As Jesse Schell points out in his talk, we are being bombarded by rewards to modify our behavior from choosing a certain product to making healthier decisions. In my case, the reference was to that class I taught at Indiana University in Fall, 2009, called “Theory and

GAMIFICATION

Simply put, gamification is the application of game mechanics to nongame activities. Its underlying idea is to increase engagement.



Lee Sheldon’s Grading Procedure: You will begin on the first day of class as a Level One avatar. Level Twelve is the highest level you can achieve.

Level	XP*	Letter Grade
Level Twelve	1860	A
Level Eleven	1800	A-
Level Ten	1740	B+
Level Nine	1660	B
Level Eight	1600	B-
Level Seven	1540	C+
Level Six	1460	C
Level Five	1400	C-
Level Four	1340	D+
Level Three	1260	D
Level Two	1200	D-
Level One	0	F

FIGURE 1.1 He could have at least found a good picture of me.

6 ■ The Multiplayer Classroom

Practice of Game Design.” We will examine this first, stumbling iteration of the multiplayer classroom in detail when we reach Quest 3 and discuss the motivation that supports gamification during Quest 4.

Professor Schell highlighted one aspect of the class that fits the theme of his talk: my grading system used experience points, or XP, to track student progress, not letter grades. The first wave of inquiries from the press and educators hit almost immediately. A second wave struck when Professor Schell’s talk was picked up as the first non-Technology Entertainment Design (TED) talk to be highlighted as part of a weekly series on the TED website.

Again, most of the focus was on XP. When I began to explain that, in fact, the entire class had been designed as a multiplayer role-playing game (RPG) in the vein of *World of Warcraft*, enough new questions were being asked that a graduate student of mine created a blog with attached forums to answer as many as we could. What a number of those inquiring minds didn’t realize was that we weren’t playing *World of Warcraft*, or any MMO. This also was not creating a classroom in cyberspace, a concept many educational institutions experimented with at the time such as the one in Figure 1.2. The class *is* the game.

The multiplayer classroom space was in a real classroom. The class itself *was* the game—played out in real time in the real world of that classroom with students as players and teacher as the Game Master.



FIGURE 1.2 A virtual classroom on the Ohio University *Second Life* campus in 2011.

Here's my edit of a useful definition of Game Master from Wikipedia.

Why base the classes I designed on *World of Warcraft*? I was simply using the adventure game and RPG tropes from MMO's because these were the types of games I enjoyed playing, whether single- or multiplayer. It is not a requirement for a successful multiplayer classroom.

What I didn't realize in the beginning was how these types of games also supported a concept I mentioned in the Preface that became even more useful as the multiplayer classroom developed: collateral learning, particularly through narrative.

MIDDLE GAME: THE SHIFT

The middle game in chess is wide open. The overall course of the game may have been charted, but here many options present themselves. The number of possible positions is great. The players have multiple decisions to make.

I remember when I first proposed the idea of designing classes as games to my colleagues in the Department of Telecommunications in May of 2009. Professor Edward Castronova, an innovative teacher and economist who focused on massively multiplayer games, had been experimenting with bringing elements of games into the classroom. He was immediately taken with the idea. Others were more skeptical. It was here I first heard the concern that such an approach might not work outside of the area of video games. Yet whatever my more doubtful colleagues may have thought of the idea, all encouraged me to experiment with it.

The outside interest in multiplayer classrooms continued to grow, and the second class designed as a game began to reveal a number of reasons why the approach might have merit beyond teaching video game design. As noted in the Preface, more and more research into designing classes as games has produced some extraordinary results. We have yet to discover a class that cannot be taught in this way. Maybe we never will.

ENDGAME: THE BOOK

In this book you will find instruction on how to design classes as games on any subject to reach the students of today through the same methods that inspire their interest in many types of games from AAA video games and virtual reality games to casual games on

GAME MASTER (AKA GAMEMASTER OR GM)

A Game Master is a person who acts as an organizer, official source for questions regarding rules, arbitrator, and moderator for a multiplayer game. The role of a Game Master in a traditional RPG is to weave the other participants' player-character stories together, control the nonplayer aspects of the game, create environments in which the players can interact, and solve any player disputes.

The basic role of the Game Master is the same in almost all traditional RPGs, although differing rule sets make the specific duties of the Game Master unique to each system.

mobile and Facebook to augmented reality games. Since there is sometimes a misunderstanding of the difference between virtual reality and augmented reality, here are a couple of short definitions.

Case studies of my classes and those designed by other educators who are exploring game-based learning will provide the reader with an introduction to game design elements that worked and some that didn't. Failures as well as successes are important teaching tools. They also will reveal how some elements of multiplayer classrooms have evolved, yet others have remained the same.

We'll explore how to approach grading as a positive reward of accretion rather than a penalty of subtraction. Students only level up through the addition of XP. XP is *never* deducted.

VIRTUAL REALITY GAMES (VR)

Virtual reality games are entirely digital worlds viewed through 3-dimensional imaging devices such as goggles and headsets.

AUGMENTED REALITY GAMES (AR)

Augmented Reality Games bring digital elements into the real world as viewed through specialized devices or ordinary cell phones. *Pokémon Go* is the best known of these.

Your Classroom

Early MMOs allowed XP to be subtracted. In *Everquest* you could even lose a level you had already achieved. It was extremely frustrating and universally loathed and was abandoned by later games. This simple adjustment to the way grading is perceived, changing punishment to achievement, is one of the easiest ideas of the multiplayer classroom to implement.

We also will tap into the social networking memes and tools already used by students. And we will examine that which is unique to a particular subject or teacher, and what can be universally applied to a vast range of topics by anyone. In addition, *The Multiplayer Classroom: Game Plans*, a companion book to this one, features complete, annotated design documents, step-by-step blueprints of how a range of different multiplayer classes were designed and developed for standard classrooms, online, and the great outdoors.

Today, students are struggling. They leave school with the feeling they've survived a grueling marathon instead of with an abiding thirst to continue to seek knowledge. Society is not unaware of this. Everywhere educators from K-12 to university professors

are attempting to negotiate the widening gap between decades-old teaching methods and the video game-playing, social-networking students of today. This book attempts to attack this challenge on its own ground: to create a new way of teaching that not only re-engages students but also teaches them more efficiently than the standard lecture and exam grind.

We will start with efforts to bring video games and virtual worlds into the classroom as teaching tools, a literal-minded approach that has had difficulties, whether (1) existing commercial games are used, or (2) existing applied games, or (3) games designed for specific classes by outside developers or students, or (4) games designed for specific classes by those teaching them.

Research on the efficacy of all four approaches, as we shall see, is mixed in its findings. This isn't surprising. Research on the whole is quite good at measuring whether appropriate subject matter is present in a game design. It is rare, however, to find research that takes into account the quality of the game design itself.

In the iterations of the multiplayer classroom in this book—and in the case studies by other educators also presented here—you will see that necessary analysis at work just as it would be in the development cycle of *Valiant Hearts*, *Her Story*, *Gone Home*, *Brothers: A Tale of Two Sons*, *Journey*, or *The Last of Us*, arguably some of the best storytelling games of the past few years.

In August of 2010, I left Indiana University and headed east to become codirector of the Games and Simulation Arts and Sciences (GSAS) program at Rensselaer Polytechnic Institute (RPI). The third iteration of the multiplayer classroom, “Introduction to Game Design,” was taught there during that first semester. It bore many similarities to the two classes I taught at IU. Thanks to Marie-Pierre Hugué, then senior course developer, Innovation and Research in Teaching and Learning Office of Undergraduate Education, and her team, we were able to document that multiplayer classroom with photographs and video. Quest 5 covers this class, and you'll find her thoughts on the experience immediately following that quest.

As I was writing the first edition of this book I was teaching “Designing Interactive Characters for Digital Games.” The subject matter of that course was different enough from the first three that I designed an entirely new game. The class was still ongoing as I wrote this book. It will be completed in this edition in Quest 6.

And you, gentle reader, don't simply need to be a consumer. If you apply what you learn here, or have been exploring this concept on your own, record your results. Come visit our community. Contribute! Currently you can find us on Facebook at www.facebook.com/MultiplayerClassroom. Soon we hope to have a dedicated website of our own. Stay tuned!

Of course, this isn't really the endgame. This book is still unfinished. The rest of the story will be written by you.

QUEST 1 WALKTHROUGH

- XP is a primary way to measure achievement in video games. They map directly to letter grades. (Fundamental Concept)
- The Multiplayer Classroom is neither a video game played in a classroom nor a class conducted in cyberspace.
- It bears repeating: the class *is* the game and the classroom is the game board. (Fundamental Concept)
- I chose to design my first multiplayer classes based on the kind of games I liked to play. It is not a requirement for a successful multiplayer classroom.
- We have yet to discover a class that cannot be taught in this way.
- In this book you will find instruction on how to design classes as games on any subject to reach the students of today.
- Students only level up through the addition of XP. XP is *never* deducted. (Fundamental Concept)

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Games in the Classroom

LEARNING THROUGH PLAY IS the fundamental way young mammals acquire knowledge of the world around them. In both the fields of education and psychology, much research has shown human children are no different. Their sense of the world comes into focus during early play. They develop the skills necessary to survive physically, mentally, and emotionally. And because failure in play is rarely catastrophic, they acquire the confidence necessary to try new approaches to the world around them.

Children experiment from the very first moment their senses are switched on. They smell, taste, and touch. A child will be drawn to the heat of a fire, but once burned will learn to keep their distance. The mistake has taught them more about fire than any lecturer can.

So why then once children reach a certain age do we interrupt their play? Play is considered frivolous, at best a way to blow off a little steam before they return to the serious business of learning.

We not only decide when it is time to get serious about learning but also regiment it. Lectures become rote. Tests are standardized. Measurements become more important than knowledge. Failure is penalized with a big “F.” But what are we measuring exactly? A child’s ability to learn? Our ability to educate? They were doing just fine before we decided to turn them into miniature adults like those disturbing children in seventeenth- and eighteenth-century portraits like *Portrait of a Child with a Coral Necklace* painted by JanClaesz in 1626. That child creeps me out more than any standardized zombie invasion.

One way in which playing video games and traditional learning practices differ is in how they treat mistakes. Mistakes are most often punished, and busy teachers do not always have time to mark the correct answer on an exam or a paper. So, students only know they’ve gotten something wrong. Learning has been sidetracked. This tends to focus their attention more on grades than on content.

In video games, the primary way players learn is from making mistakes. They try something, say crossing a chasm by leaping, and their avatar plummets to the crocodile-infested waters below instead. Then their avatar magically resurrects! Now they can try using the bridge. Avatar is another name for the character the player will direct throughout the game. James Cameron took the name of his blockbuster film from this game concept.

In the end, players will figure out how to cross that chasm. And they will be rewarded for their success by the emotion “fiero,” and not punished for their failures.

Because the consequences are seldom as harsh as failing an exam, player avatars pick themselves up, dust themselves off, and simply try again and again until they figure out how to solve the problem. During complex multiplayer boss raids, dedicated players may work for weeks to discover the correct strategy to be victorious in a single battle, even if they are supported by mentors who have defeated the boss or online hints. One thing is certain: the lesson is retained.

If you have noticed that your students appear to be more focused on their successful last night in *Fortnite Battle Royale*, or the productivity of their farm in *Stardew Valley* than homework assignments and have wondered how to direct an equally intense focus onto their school work, take this lesson about mistakes to heart. It is one of the reasons the multiplayer classroom works so well.

Who decided when to flip the switch? “Okay, enough of this learning about the world naturally. I want you to sit there, unmoving, and listen while I do your thinking for you. Memorize what I’m saying so you can take a standardized test so you can be compared to lots of other standardized children, and our school will get more money for educating you better.”

Happily, educators for years have devised their own ways of retaining a sense of play in the classroom. Even in the face of multiple-choice exams, so computers can grade for us, and then compile all sorts of data full of rich mining opportunities, games sneak into the classrooms. It shouldn’t be any surprise that when video games first came along, they were smuggled in as well.

AVATAR

Avatar, a Sanskrit word, was adopted to mean the online representation of a participant in a game or social network.

FIERO

An Italian word meaning pride borrowed by Nicole Lazzaro and Hal Barwood to describe an immediate feeling of exhilaration triggered by personal triumph over adversity.

BOSS RAID

An attack by multiple players on a particularly difficult opponent, usually the “boss” of an entire area of a game.

EDUCATIONAL SOFTWARE

Just as teaching with games has been around a lot longer than many think, educational software has been as well. Flight simulators date back to the 1940s. Plato, the Greek philosopher, was recognized for his groundbreaking work when researchers at the University of Illinois developed the PLATO (Programmed Logic for Automated Teaching Operations) system in 1960.

In 1978 the first personal computer, the Altair 8800, changed educational software distribution forever. Just as the arrival of inexpensive computers from Commodore, Apple, and IBM led to a viable commercial game industry, they opened the door for a profitable educational software industry.

The emphasis in most of these products was far more on education than entertainment. They were little more than electronic versions of coursework with furry critters as teachers. In most cases, they were meant to supplement, not supplant, classroom curricula. Soon a new type of software appeared on the scene. At the time it was called *edutainment software*.

This marriage has always been a rocky one. Relationships need *balance* to sustain them. We'll come back to that word, *balance*, again and again in the following pages. One of the hardest jobs a game designer has is to balance the many elements of a game. One of the hardest jobs any teacher has is to balance content with engagement. The multiplayer classroom provides a method to maintain that balance.

EDUTAINMENT

Edutainment was a marriage of education and gameplay that could be experienced without supervision.

Your Classroom

How do you, if you're the educator, achieve this difficult balance in your own multiplayer classroom, particularly if you haven't played video games? Take a tip from Stacy Jacob in the first edition case studies you'll find in the Appendix of this book. You are surrounded by gamers. They are your students, other faculty members, personal friends and family. Even if they are not game designers (and wouldn't that be a lucky coincidence), you can run ideas you find in this book and your own ideas by them. They will know what it means to learn by failing, giving players choices, even the variable schedules highlighted in Quest 13. Test your ideas on them. No matter what the subject matter they'll be engaged or not. Either way you learn.

EDUCATION VERSUS ENTERTAINMENT

Time for some quick history both ancient and modern. To begin let's quickly get past one belief many have about game-based learning: that it is simply a new fad. Consider the following quote:

There may be dice and play-things, with the letters on them to teach children the alphabet by playing; and twenty other ways may be found, suitable to their particular tempers, to make this kind of learning a sport to them.

That's philosopher and physician John Locke in 1692.

Wow, you may be thinking, John Locke invented game-based learning all the way back in the seventeenth century! Actually, he wasn't the first. Here is another quote:

In [Egypt] arithmetical games have been invented for the use of mere children, which they learn as a pleasure and amusement.

That's Plato, our Greek philosopher friend, writing around 360 B.C.

We are not done yet. Go centuries farther back in time. Scholars believe the Egyptian game *Senet* circa 3300 B.C. was designed to teach players about, and prepare for, the after-life. Its name is thought to translate as "the game of passing."

Educational software has been around a lot longer than you might think. Flight simulators date back to the 1940s. The last PLATO terminal was still in operation until 2006. The PLATO IV system boasted a number of features that would become common on home computers just a few years later. These included rudimentary graphics, sound, and even touchscreens.

Since the popularization of digital games there have been "educational" games. Educational games are a subset of a larger universe of games: those that have more on their mind than entertainment. The relevant article in Wikipedia calls these "serious games or applied games" then wrongly asserts "The use of games in educational circles has been practiced since at least the twentieth century." As you saw above, the author of the article is off by thousands of centuries. While the article focuses on the word "serious" to describe such games, I prefer and regularly use "applied."

I first heard this designation proposed at the 2010 Game Education Summit by Dr Vinod Srinivasan of Texas A&M University's Department of Visualization. Dr Srinivasan argues convincingly that "applied" is a familiar word to us, and it has been successfully used in a number of fields. Wikipedia (*Serious Game*, December 8, 2019) describes applied math as "that branch of mathematics typically used in the application of mathematical knowledge to other domains." Applied science is the "application of scientific knowledge transferred into a physical environment." What are these games, if not an application of game design knowledge to other domains like education and persuasion, transferred into environments that may be physical or at least virtually physical?

The awareness of the impact of video games on students has not been lost on educators, but much like the first stumbling attempts to integrate story into games, many attempts to integrate games into the classroom have not been a resounding success. From here, it looks a lot like missing the forest because of all those trees in the way.

In the early days there were worthy applied digital games like *The Oregon Trail* (Figure 2.1) originally developed by Don Rawitsch in 1971, but not widely available until the Apple II version in 1978, and *Where in the World Is Carmen Sandiego?* (Figure 2.2), designed and written by Gene Portwood and Lauren Elliot, and programmed by Dane Bigham, in 1985. It was the first title in a series that began by teaching geography via a simple narrative, spawned numerous incarnations, and three TV series, which then generated more variations teaching all sorts of subjects until at least 2015.



FIGURE 2.1 *The Oregon Trail* for the Apple II.



FIGURE 2.2 *Where in the World Is Carmen Sandiego?* Original box cover 1985.

There were many others not so worthy. The problem was that *edu* came before *tainment*. Education was emphasized so much that little more than lip service was paid to entertainment. This imbalance survives to this day.

What separated the good from the bad and the ugly was *context*. In the case of *Where in the World Is Carmen Sandiego?* a simple narrative challenged players to track down henchmen of the notorious Ms. Sandiego. The player was confronted with real geographical clues that functioned both as subject matter to be learned *and* clues in the plot. That little word “and” is vital.

There are two distinct groups of developers creating applied games. The first is composed of educators, students, and business persons who are not familiar with basic game design and development techniques. The second group is composed of commercial game designers who are equally unfamiliar with the particular requirements of education. The dilemma is a tricky one. If the software fails to entertain, it can be even more boring than the worst lecturer. If the software concentrates too much on fun, it risks obscuring the learning objectives. I will address this issue in later quests, but the secret to the balance here is pragmatic educators and game designers being willing to collaborate and compromise, so that both have an opportunity to reach their goals.

The next wave of video games used for education dropped the EDU entirely from Edutainment and brought the instructor back into the equation. These are commercial video games that may contain educational elements by their very nature but were not designed to be educational. One of my favorites, and one of the best computer games of all time was Sid Meier’s *Civilization* (Figure 2.3).

My son Graham will tell you he learned some important history lessons from that game, including that dictatorships are a great system of government. You have nobody to answer to. You can do what you like. Until your people get so unhappy, they revolt. Game over. Sorry, Graham. Later incarnations of *Civilization* are being used in classrooms to this day.

Graham also learned strategy, tactics, diplomacy, arbitration, and leadership by running guilds in massively multiplayer games like *Everquest*, *Dark Age of Camelot*, and *World of Warcraft* starting at about age 10. In one early game, he told other players, many of whom were adults, that he was a cryogenic engineer from Seattle. In *Dark Age of Camelot*, he would be called upon to settle disputes between guilds run by people a lot older who prized his skills at arbitration.

And this brief anecdotal family history is supported by research. Constance Steinkuehler has done intriguing work on learning in MMOGs. James Paul Gee is another researcher of learning through video games. I commend the work of both, and of their colleagues.

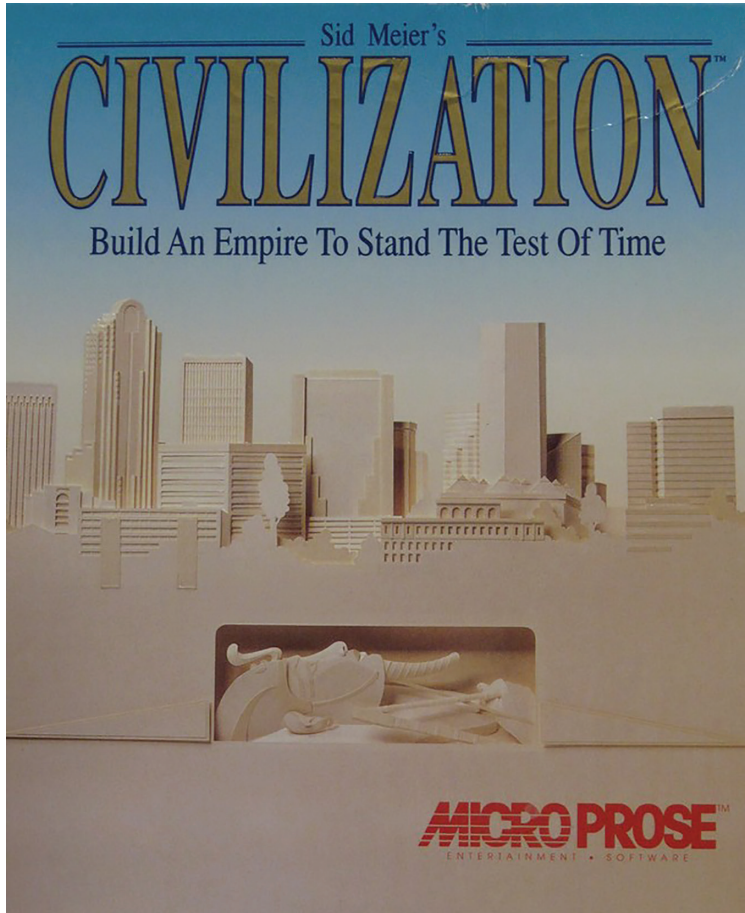


FIGURE 2.3 A commercial game can teach.

QUEST TO LEARN

The year I entered academia, 2006, initial design and development began on a new kind of school called Quest to Learn. It was an innovative school, then teaching only sixth and seventh grades. As of this writing the school serves grades six through twelve. In the beginning the school was being funded by a grant from the John D. and Catherine T. MacArthur Foundation. Collaborating with the Education Department of New York City, Quest to Learn focused on digital literacy. The school first opened its doors in the fall of 2009, the same year I taught my first class as a game.

As their website (Quest to Learn, 2011, <https://www.q2l.org/>) explained at the time, the school “immerses students in differentiated, challenge-based contexts, the school

acknowledges design, collaboration, and systems thinking as key literacies of the twenty-first century.” The school stressed its approach was rigorous, not frivolous, and that students did not spend class time hunkered down in front of computer screens. Instead, classes were built around big ideas like “The Way Things Work.” Then students were empowered to role-play within the class. For example, instead of teaching math, the school enabled students to take on the role of mathematicians. As of this writing the school has 664 students in grades six through twelve.

Today their website states, “Middle and high school students at NYC public school Quest to Learn achieve significant growth in critical thinking, reasoning, problem-solving and communication skills, according to new research from New York University.” It is a fascinating holistic approach to learning. I encourage you to look into Quest to Learn (2020), <https://www.q2l.org/>. You may well find ideas you can use.

There have been several attempts to turn traditional school full curriculums into similar game-based schools, but so far without the success of Quest to Learn, built from the ground up.

GAME-BASED LEARNING SOFTWARE

There have been a number of other game-based learning systems similar to the multiplayer classroom, as well as some software tools developed explicitly to support game-based learning. Rezzly is the latest incarnation of the 3D GameLab, developed by Chris Haskell and Lisa Dawley in 2011 at Boise State University. Their research is responsible for the statistics in Quest 1. It is a class management system built to support game-based education. In 2013, 2 years after this book was written, a Canadian teacher, Shawn Young, created a simple online RPG to better engage his students. Out of that effort was born a program and a company called World of Classcraft that also took the various responsibilities of a Learning Management System (LMS) and apply them to a gamified classroom using Role playing game (RPG) terminology. The words “World of” were dropped and the software was developed to manage more elements of gamification.

Since I’m more familiar with Classcraft, I want to focus on it for a moment. While Classcraft has continued to expand its toolset in a number of useful ways and I’ve had it demonstrated to me several times over the years, I have never used it. Surprised? It sounds like exactly what I was looking for, but there are several reasons why.

- While this book contains multiplayer classroom case studies featuring K-12 students, I have only taught at the university level. Classcraft is aimed at children. I use whatever learning management system LMS is used by the school where I’m teaching.

None are perfect, as you will see, but each system tracks what I need tracked: assignments, due dates, grades, etc. It isn't necessary to insert the LMS into the world of the game. I've tried it.

- If Classcraft will be used in a class for children under the age of thirteen, parental consent is required by law. What happens if some parents do not give consent?
- Classcraft can adapt to different teacher requirements, but the company states that the software may need to be modified.
- Classcraft is still tied to high fantasy with mages, warriors, and healers. While the multiplayer classroom started in a similar genre, it has been adapted to any genre as the case studies demonstrate. Not every child wants to be a mage. Some may want to play in a circus or on a submarine or in outer space.
- Because Classcraft is an LMS, it is necessarily focused on extrinsic rewards, the rewards computer software can easily track. Intrinsic rewards can occur for students if you're using Classcraft, but Classcraft is not necessary in a classroom to achieve them.
- Classcraft is a software. While it uses much of the multiplayer classroom terminology and methodology, it isn't needed to create the same experience for students. As I said at the beginning of this book, the multiplayer classroom can be played in a field with no technology of any kind.

We tried to revamp a generic LMS into something similar, as you will see in Quest 5.

Your Classroom

Read up on Classcraft and Rezzly by all means. Read reviews from teachers like you. One of them may be exactly what you're looking for to structure your class as a game. But if you don't have the budget for it or are only interested in grading by accretion instead of attrition or not punishing students for not attending, they may be a good starting place for you to organize your first multiplayer classroom. Consider them game-friendly class management and gamification tools. Have a look at their websites. Either would probably be a better fit for your multiplayer classroom than a standard LMS. They are limited by their programming and the choices they make on your behalf. They will also talk about engaging students. It's important to point out that engagement can be achieved without them. For free.

In Quest 15 I will also tell you about an experiment run at the Rochester Institute of Technology in 2011 that investigated adapting gamification to the entire first-year college experience.

This has been a brief history of how video game design concepts have been used in education. It is also directed at teachers who do not have access to funds from large foundation grants. If nothing else, the multiplayer classroom will appeal to every miserly school system in the land. It uses the language and principles of video games to engage students with little to no out-of-pocket costs at all.

QUEST 2 WALKTHROUGH

- Mammals learn from play. Human children are no different. (Fundamental Concept)
- When creating a game that teaches, educators and game designers must be willing to collaborate and compromise, so that both have an opportunity to reach their goals. (Fundamental Concept)
- A balance must be struck between learning and fun. (Fundamental Concept)
- Consult the gamers around you to help design the fun side of the balance.
- The multiplayer classroom uses the language and principles of video games to engage students with little to no out-of-pocket costs at all. (Fundamental Concept)

REFERENCE

Wikipedia. *Serious game*, https://en.wikipedia.org/wiki/Serious_game. Last modified February 7, 2020.

SECTION 2

Multiplayer Classrooms



Taylor & Francis

Taylor & Francis Group

<http://taylorandfrancis.com>

IU Theory and Practice of Game Design

NOTE: IN THE FIRST edition readers were treated to every minute detail of the classes I designed as games and those regular classes that preceded them. In order to include all of the example classes I cover in this book, I've cut some of that detail, reducing in each case what were two chapters per class to one to keep the material digestible without removing anything critical. This chapter is the longest in this book because it needs to cover a number of foundational concepts.

FLASHBACK: SUMMER OF 2009

In my third year of teaching I was past making up my own grades based on nothing more than feelings. I no longer simply read aloud from the textbook as my lectures. (Yes, I did that, too.) But I was still bored. Like my students, I had been educated through high school on lectures and multiple-choice questions. However, my undergraduate major in college was in directing for the theater, and that discipline broke out of the mold of lectures and multiple choice. We learned by doing, not by being told what to do.

By the summer of 2009, I could tell that my audience in the classroom was disengaged. They knew what to expect in all of their classes. The only difference between those classes was a teacher's ability to make learning as interesting as possible. The very best teachers found ways to focus on having students do something as part of lessons rather than being talked to. And I do not mean taking notes. Taking notes does not decrease boredom. The very best students went beyond what they learned in school, either encouraged by

teachers or by supplementing their classwork with additional learning outside of school. Other students were left behind.

What could I do? I didn't have a degree in education or in the subject matter I was teaching. I did have a terminal degree, a Master of Fine Arts. But my degree was in directing film, not in making games. To my surprise that still got me a job teaching video game design at Indiana University. When I was a college student there were no classes, let alone degree programs, in video games. I learned to write and design them by playing them and then making them. What could I do to re-engage my students? The answer seems obvious now, but as in Tom's last speech in *The Glass Menagerie* by Tennessee Williams: my satori "came upon me unawares, taking me altogether by surprise."

What could I do? I could write and design a class as a video game! Or at least I could try. The first step in designing the new class was to decide what type of game to make it. With a total of forty students possible in the class, multiplayer was an obvious choice, and the classroom is a real-time environment. There were real-time multiplayer versions of shooters and strategy games, as well as the multiplayer casual games that have in recent years exploded in popularity on Facebook and smartphones.

As I have indicated, my preferred online gaming experience then and now is RPGs. I'm currently playing *The Elder Scrolls: Blades* on my iPad. Many over the years were persistent worlds, MMORPGs. Remember that first long acronym now shortened to MMOs? I've played several of these games, starting out with *Ultima Online* (1997) and continuing through *Everquest*, *Dark Age of Camelot*, *Horizons*, *Lord of the Rings Online*, and the king of them all, *World of Warcraft*.

And while most of my commercial design employment has been solo games, I've worked on multiplayer games from Cyan, Microsoft, and other companies. At the time I was tackling the first edition of this book I was writing *Star Trek: Infinite Space*, an MMO for a German game developer, Gameforge. So, the choice to design the class as a multiplayer RPG was a natural one.

STAY FLEXIBLE

While multiplayer online games are played in real time, they are designed first and played afterward. Even the inevitable gameplay updates for issues such as balancing and levels of difficulty, and the addition of new content, are all designed and tested in advance of implementation.

Thanks to the *Skeleton Chase* games, I'd already had experience with ARGs. Designing and running ARGs in real time in the real world taught me that a degree of flexibility and speed of implementation necessary to improvisational comedy troupes might be required.

In real life, stuff happens. Keep this in mind, if you intend to design your class as a game. As Robert Burns memorably reminded us in his poem “To a Mouse”: “The best laid schemes o’ Mice an’ Men, gang aft agley.”

Your Classroom

The best teachers think on their feet. You are used to adjusting to the surprising twists and turns a class can take. Apply that ability when you are designing your multiplayer classroom, then again once it is launched and the real world intrudes. Some may not want to venture into the wilderness that lies beyond the safety of the same notes, quips, and PowerPoints they’ve been leaning on for years. But you are reading this book and hopefully others because you want the best experience for your students as well as yourself.

Having chosen the type of game I wanted to turn the class into, I next had a look at the syllabus I’d used in the fall of 2008 (Figure 3.1).

Students rely on syllabi. While it may not be the contract some of them think it is, it gives them their first detailed look at how they will be spending their time, and what will be expected of them. You can see it is pretty straightforward. Despite the fact that this was a class on games, there was no gameplay in sight. The only item I would call your attention to is under Attendance and Conduct:

Participate with civility and an abiding appreciation for the power of words.
Respect others, even those who hold opposing views.

This admonition appears in every syllabus I have ever written. As a professional writer, I am very cognizant of the power of the pen, or the spoken word, over the sword. In our increasingly uncivil society, one of the first beachheads of the war on civility is the classroom. Students from all walks of life enter with their own perceptions of appropriate behavior and discourse nurtured by their parents and peers. Hopefully these perceptions are not immutable. It may seem quaint or Pollyannaish to expect such ingrained behavior to change. But it can. If civility loses a foothold early in a child’s life, the classroom is one place they may recover it. Strangely enough, so is a multiplayer game.

Multiplayer games from *World of Warcraft* to the multiplayer mode of first-person shooters allow

TRASH-TALKING

Boastful, taunting chat, at times laced with l33t speak and profanity, that is meant to assert authority before, during, or after a PvP battle. Profanity was not allowed as part of the class trash-talking!

Indiana University, Bloomington
Department of Telecommunications

T367: Theory & Practice of Game Design

Section 27009

Fall 2008

Days and Times MW 1-2:15pm

Room 245 RTV Building

Instructor: Lee Sheldon

Office: Room 311 RTV Building

Phone: 855-6840

Office Hours: MW10:00-11:00am

Email: clsheldo@indiana.edu

Prerequisites: Three Previous Telecommunications Courses or Permission of Instructor

Description

From the earliest games played with sticks and pebbles through today's virtual worlds and ARGs, students will be exposed to game studies theory and video game design techniques, and will create proposals for games of their own.

Format

The underlying philosophy of this course is that the best learning is achieved by doing; so while there will be lectures and discussion on game theory and design issues and techniques, the emphasis will be on designing games.

Class time will be divided between lecture, workshop and review. At the beginning of the semester the emphasis will be on lectures and your reading. From the very beginning however we will be relating what we learn directly to the game designs. After selecting the games to be built, students will divide into teams (size of teams and number of designs determined by class size) to work on the designs.

Topics to be covered throughout the semester include:

- History of games
- Universal game design principles
- Video game development
- Video game research
- The video game industry
- Defining "game"
- Video game aesthetics
- Video game culture
- Player culture
- Narrative
- Serious games
- Video game design documents
- What we can borrow from passive media
- Non-linear structures
- Systemic gameplay & scripted gameplay
- ARGs (Alternate Reality Games)
- Discussion, review of the designs, post mortem

Grading Procedure

Grading is rigorous. The final grade will be based on a 1000 point scale as follows:

- Short papers analyzing elements of existing games (150 pts.)
- Quizzes (150 pts. total)
- Midterm Exam (250 pts.)
- Final Project: Video Game Proposal (300 pts.)
- Class attendance (75 pts.)
- Class participation (75 pts.)
- Extra credit for early completion of final proposal (10 pts./Monday; 5 pts./Tuesday; see calendar)
- Extra credit for text editing (25 pts.)

Spelling, grammar and punctuation must be proofed. Points will be deducted otherwise.

Grades and percentages:

A	93-100%	C	73-76%
A-	90-92%	C-	70-72%
B+	87-89%	D+	67-69%
B	83-86%	D	63-66%
B-	80-82%	D-	60-62%
C+	77-79%	F	0-59%

Attendance and Conduct

Attendance will be taken, and will count toward the final grade. You are expected to attend every class. Assignments are due at the *beginning* of every class. Late assignments will subtract from the grade for that assignment, one letter grade for each day the assignment is late.

Plagiarism, submitting assignments written by others, and other forms of academic misconduct are governed by university policy. In a word: DON'T.

Classroom conduct: Participate with civility and an abiding appreciation for the power of words. Respect others, even those who hold opposing views.

Required Text

Understanding Video Games. Egenfeldt-Nielsen et al.

Suggested Reading

Homo Ludens. Johan Huizinga.

Flow: The Psychology of Optimal Experience. Mihaly Csikszentmihalyi.

A Theory of Fun. Raph Koster.

Game Design (Second Edition). Bob Bates

Game Design: A Practical Approach. Paul Schuytema.

Rules of Play. Zimmerman & Salen.

The Art of Game Design: A Book of Lenses. Jesse Schell.

Character Development & Storytelling for Games. Lee Sheldon.

audible chat. Players speak directly to one another. This serves two purposes. The first: orders to fellow players on a team can be delivered much faster, a necessity in boss raids and when battling other teams of human players. The second is trash-talking.

Listen to trash-talking and l33t speak and you might think gamers were a peer group at odds with civil conduct in the classroom. Yet guild cultures are built from the top down. The leadership of a guild has the power to regulate the boundaries of discourse, and they do. Many of the largest guilds in MMOs have in their memberships people of all ages and backgrounds, drawn from the widest possible spectrum of political, social, racial, cultural, and geographical groups.

The best guild leaders acknowledge that what may be proper language for American teenage boys may not be appropriate for senior citizens from Japan. So, they lay down rules for both behavior and discourse. Players *want* rules, and the rules must be clear and concise.

An article in *Time* magazine prompted by the end of Hosni Mubarak's 30-year reign in Egypt, *What Was Mubarak Thinking? Inside the Mind of a Dictator*, highlights the work of biological anthropologist Chris Boehm at the University of Southern California: "[Boehm] studies the human revolutionary impulse and has been struck in particular by how it plays to a unique tension in the psychology of our species. On the one hand, humans are extremely hierarchical primates, readily picking leaders and assenting to their authority for the larger good of the community. On the other hand, our hunter-gatherer ancestors were a very egalitarian bunch, doing best when the group operated collectively, with dominance asserted only subtly."

Good guilds survive and prosper because it is human nature to seek out leaders, but members want to feel that their voices are heard. Bad guilds (and political regimes) fail when their leaders become totalitarian. Maybe not at first, but history has shown us that discord cannot survive forever. Because guilds are made up of players, whatever their backgrounds, that seek a common success and style of play, members routinely allow themselves to be led. And they self-police. This style of play is right at home in the multiplayer classroom.

One final thought on civility: guild leaders have the power to discipline and even remove members. Schools have the same power. But everyone uses these measures as a last resort. Self-policing and a willingness to play by the rules are second nature to gamers.

L337 SPEAK

l337 or l33t speak is a pseudo-language that began on bulletin boards in the 1980s, often simply a product of misspellings; then it prospered as a means to get around language filters in multiplayer gaming and social networks. Elements of l337 speak are now in general usage, particularly in texting and tweeting. Examples include "c" instead of "see," "u" instead of "you," "teh" instead of "the," and "pwned" instead of "owned." Replacing vowels with numbers and characters is also common as in "l337" itself, derived from "elite."

SYLLABUS

Let's have a look at the syllabus I wrote for the first iteration of the multiplayer classroom in the fall of 2009. The content in the course would remain the same. But this document would be the students' first detailed look at a class designed as a game (Figure 3.2).

Indiana University, Bloomington
Department of Telecommunications

T367: Theory & Practice of Game Design

Section 29622

Fall 2009

Days and Times MW 1-2:15pm

Room 209 Ballantine Hall

Instructor: Lee Sheldon

Office: Room 311 RTV Building

Phone: 855-6840

Office Hours: MW 10:00-11:00 am

Email: clsheldo@indiana.edu

Prerequisites: Three Previous Telecommunications Courses or Permission of Instructor

Description

From the earliest games played with sticks and pebbles through today's virtual worlds and ARGs, students will be exposed to game studies theory and video game design techniques, and will create concept documents for games of their own.

Format

This class is designed as a multiplayer game.

Class time will be divided between fighting monsters (Quizzes, Exams etc.), completing quests (Presentations of Games, Research etc.) and crafting (Personal Game Premises, Game Analysis Papers, Video Game Concept Document etc.).

At the beginning of the semester everyone in the class will choose and name their avatars. The first task is to craft the premise of a game you would like to design. This may be a boardgame, video game (AAA, casual etc.), massively multiplayer game, alternate reality game, or...? Guilds to craft these games will be chosen, balanced as closely as possible by 133t skillz and interests. Guilds will choose their names. There will be five guilds of 5-6 members each depending upon final class size.

Grading Procedure

You will begin on the first day of class as a Level One avatar. Level Twelve is the highest level you can achieve:

Level	XP*	Letter Grade
Level Twelve	1860	A
Level Eleven	1800	A-
Level Ten	1740	B+
Level Nine	1660	B

FIGURE 3.2 Fall 2009 syllabus.

(Continued)

30 ■ The Multiplayer Classroom

Level Eight	1600	B-
Level Seven	1540	C+
Level Six	1460	C
Level Five	1400	C-
Level Four	1340	D+
Level Three	1260	D
Level Two	1200	D-
Level One	0	F

*Your level will be determined by experience points (XP) on a 2000 XP scale. You gain XP by defeating mobs, completing quests and crafting.

- Solo: Craft your own game proposal. (Written, 50 pts.)
- Solo: Present your game proposal to the class. (25 pts.)
- Solo: Sell your game proposal to the class. (**Extra credit**. 25 pts.)
- Raid: Guild reading presentation (75 pts. each person, 1 of these per guild)

- Pick-Up Group: 2-Player reading presentation (150 pts. each person, approx. 1 of 11 available, cannot team with fellow guild member) **OR**
- Solo: 1-Player reading presentation (150 pts. but easier than above, 1 of 2 available)

- Solo: Craft short report on *Senet* (Written, 75 pts.)
- Solo: Craft short analysis on board game of your choice (Written, 100 pts.)
- Solo: Craft analysis on video game of your choice (Written, 125 pts.)
- Solo: Defeat Five Random Mobs (5 written reading quizzes, 250 pts. total, 1 **extra credit** question per quiz)
- Solo: Defeat Level Boss (Midterm Exam, 400 pts.)
- Guild: Paper Prototype (50 pts. each)
- Guild: Craft Final Project: Video Game Proposal (Written, 400 pts.)
- Solo: Class attendance (300 skill pts. total, 10 to start. 290 additional pts. at 10 pts. per day of attendance)
- **Extra credit** for early completion of final proposal (10 pts./Monday; 5 pts./Tuesday; see calendar)
- Solo Camping: Text editing (**Extra credit**. 1 pt. per mistake. 50 pt. cap per player. First come first served. Each mob only spawns once.)
- Group: Peer Review Secret Ballot (**Extra credit**. 0-100 possible XP as follows:
 - Guild Leader 100 pts.
 - Raid Leader 75 pts.
 - Solid Guild Crafter 50 pts.
 - Needs Rez 25 pts.
 - Waste of Rations 0 pts.

Grading is rigorous. Spelling, grammar and punctuation must be proofed. Points will be deducted otherwise.

Attendance and Conduct

Attendance will be taken, and will count toward the final grade (see above). You are expected to attend every class. Assignments are due at the *beginning* of every class. Late assignments will subtract from the grade for that assignment, one letter grade for each day the assignment is late.

Plagiarism, submitting assignments written by others, and other forms of academic misconduct are governed by university policy. In a word: DON'T.

Classroom conduct: Participate with civility and an abiding appreciation for the power of words. Respect others, even those who hold opposing views.

FIGURE 3.2 (CONTINUED) Fall 2009 syllabus.

(Continued)

Topics to be covered throughout the semester include:

- History of games
- Universal game design principles
- Video game development
- Video game research
- The video game industry
- Defining “game”
- Video game aesthetics
- Video game culture
- Player culture
- Narrative
- Serious games
- Video game design documents
- What we can borrow from passive media
- Non-linear structures
- Systemic gameplay & scripted gameplay
- ARGs (Alternate Reality Games)
- Discussion, review of the designs, post mortem

Required Text

Understanding Video Games. Egenfeldt-Nielsen et al.

Suggested Reading

Homo Ludens. Johan Huizinga.

Flow: The Psychology of Optimal Experience. Mihaly Csikszentmihalyi.

A Theory of Fun. Raph Koster.

Game Design (Second Edition). Bob Bates.

Game Design: A Practical Approach. Paul Schuytema.

Rules of Play. Zimmerman & Salen.

The Art of Game Design: A Book of Lenses. Jesse Schell.

Character Development & Storytelling for Games. Lee Sheldon.

FIGURE 3.2 (CONTINUED) Fall 2009 syllabus.

What could I adapt from the earlier syllabus, and what should remain the same? It was going to be a two-headed horse whatever I did, but I knew I wanted to grab students immediately with the game material. It was the Format and Grading Procedure sections that would require the most thought. To prepare them for what was to come, I began with, “This class is designed as a multiplayer game.”

I wanted to retain a listing of topics for discussion in the semester, but it wouldn’t fit with the game jargon I would be using in the section, so I moved it to the end, right before the Reading List. Then I jettisoned everything else.

While all of the students in the class had played video games, they had played a wide variety of types and not all students were hardcore gamers. Even so, they were not used to seeing the following in their class syllabi.

Taking quizzes and the midterm exam became “defeating monsters.” Writing papers became “crafting.” I still held back from descending entirely into gamer jargon. The word “monsters,” for example, would ordinarily be “mobs.” And I offered translations so they could see how the jargon would map to assignments they would normally be expected to complete in class.

All students were still required to do their reading homework, and five pop quizzes tested that they had done so. Class presentations took the place of my sage on the stage lectures. These “quests” were where students themselves taught the day’s reading assignment. Depending upon the length of a reading selection, an individual student (solo quest), two students not in the same guild (pick-up group), or an entire guild would be responsible for presenting the material. The pop quizzes would be the usual incentive for all to read the assignments. The theory was that each presenter would need to know their material even better than normal in order to teach it. As you’ll see when we move to the next quest in this book, this idea would need some massaging.

One game element not in the syllabus was a random factor. Many video games rely on a random element to make certain the outcomes of player choices and actions are not always identical. A player may face mobs with identical statistics: equal strength, the same attack, etc. Yet the amount of damage an attack might inflict is based on the computer version of the dice rolls used in tabletop games like *Dungeons and Dragons*.

I brought dice to class and rolled them to determine which individual students and guilds would be responsible for the next class session’s presentations. So one student might be hit by their solo quest and their guild quest on the same day. Another might not be chosen for either until very late in the semester.

This worried me. Students like everything spelled out. I printed calendars of assignment due dates, the midterm, and when papers were due. They expected this. How would they react to fate taking a hand in their higher education? We shall see.

I let them know they would be choosing and naming their avatars. Inventing their own personal avatars was the first act they would perform in an MMO. I expected them to recognize exactly what was required of them. I should have realized that the rules which governed my choice of name for my avatars were not shared by all.

I kept the roles the same as I had in the previous class, along with their responsibilities: Designer, Writer, Producer, Tech Lead, Art Lead, and Marketing. This was a missed opportunity. I would try a more game-like naming of roles in another class.

I gave the students too much latitude in choosing the type of game they wanted to design. I have learned the hard way that better work is done when the parameters of the assignment are much tighter. When the assignment is reduced to a specific problem, telling an architecture class to “draw blueprints for converting a factory into a luxury apartment

GUILD

The word “team” in the first syllabus was replaced by “guild.” I informed the class in the syllabus that they would be separated into guilds. A guild in this context is a community in an online RPG. Guilds can be made up of any number of players, depending on the common goals and play style that guild members decide upon.

building” is far more helpful than “draw blueprints for any building you like.” Setting limits forces more creativity from students. It also helps in corralling the scope of their ideas. No matter how many times you warn them, when the sky’s the limit they will often try to do more than they possibly can accomplish. This is not only an issue with students. It is also a trait of humans that adults wrestle with: setting our sights too high.

GRADING PROCEDURE

The Grading Procedure section went through a radical overhaul. I knew that XP were how players advanced in MMOs. Could I adapt the usual letter grades? In the table in the syllabus (refer to Figure 3.1), you’ll see my first attempt. And while it looks good as a table, there are several flaws. The most obvious one is that in an MMO we can set arbitrary amounts of XP necessary to advance.

The higher level the player, the more XP it takes to move from one level to the next. This is compensated for, in part, by greater amounts of XP awarded for tasks such as defeating tougher mobs. Here’s that word *balance* again. The only concern is that we find a balance between difficulty and reward.

The trouble with this chart was that they would have to earn 1,200 pts. to reach Level Two, while it would only take another 660 pts. to reach the highest possible level. This is not only bad game design but also not a very good class design. Yet I blithely went ahead, assuming that they would understand this. They *could* see the exact amount of XP possible for any given task. Yet unless they did the math on their own, concentrating on the amount of XP they were awarded for a task as a percentage of the possible XP for that task, they would have no idea how they were doing.

Also, in an MMO, players traditionally level up much faster in the beginning than at the higher levels. So, this particular XP system would not feel like a real MMO. It would take me until the end of the semester to realize how much this worked against their immersion in the game. It would take me two more classes to begin to tackle the issue. Only in the third multiplayer classroom in the fall of 2010 was it beginning to finally feel right. As we shall see in Quest 6, something else needed to be added, but I have wrestled with the *appearance* of the grading system again and again over the years.

In the Preface I mentioned a hint of another easy transition to the multiplayer classroom—any classroom for that matter. In the syllabus for the first multiplayer classroom, snuck in there at the very bottom of the grading procedure, I had made a radical change in how attendance was handled. After all, they need to come to class to learn, but I didn’t mention that. Instead I simply stated that the students would receive XP just for coming to class. They would not be penalized if they did not come to class. They would be rewarded for coming. On the first day I was asked about this more than any other aspect of the class. I realize this must seem like a trivial change. I see in so many syllabi dire warnings

and penalties if students do not come to class. Just by framing the attendance XP as a positive instead of a negative, attendance in all of the multiplayer classrooms is phenomenal. I remained saddened so few have tried this and rely instead on the usual apocalyptic doom.

Conduct came next, as before, with no changes. Finally, were the topic listing with no changes, the required textbook, and suggested reading. I was ready, or so I thought, to put my idea to the test.

CLASS

Creating the geography of an MMO world involves several critical decisions. Designers can choose where a bridge crosses a river to funnel players to a particularly crucial location. We can design dungeons with dark, twisty passages to heighten the suspense of exploration; and to create nooks and crannies where nasty orcs can lurk, waiting to pounce on unwary adventurers. In the multiplayer classroom, however, we want to use the physical space we're given to its best advantage. It may seem like a limitation. It certainly can be a challenge. But the multiplayer class should not be designed to force huge changes in teachers' classrooms. It should instead encourage us to look at these spaces differently. How can they be used imaginatively, without time-consuming alteration?

Ballantine Hall is the tallest building on the Indiana University, Bloomington campus. Room 209 in Ballantine was an average-sized classroom with updated multimedia equipment and old-fashioned blackboards. The most useful feature of Room 209, however, for the game designer looking to create a game world was its furniture. The student desks were chair desks: substantial metal chairs with L-shaped writing areas made of something vaguely resembling wood attached (Figure 3.3).

ZONES

These desk chairs were perfect because of the need for something I've already mentioned before: flexibility. After the usual early semester juggling, we ended up with thirty students. I therefore divided the class into five guilds of six players each.

When the class was divided into guilds, the chairs could be rearranged in a circle of several six chair "zones," each separated from its neighbors by a few feet. The middle of the room was a useful open space. Zones in a game were distinct areas with their own ecosystems and challenges. I named them after key words in game design:

- **Ocean of Immersion.** Immersion, or concentrating the attention on an activity such as a game, is an essential key to drawing the player into the world of the game.
- **Empathy Acres.** Empathy, the ability to figuratively put yourself in someone else's shoes, is important, if you want your players to feel emotion for the characters in a game.



FIGURE 3.3 Ballantine Room 209.

- **Feedback Farms.** Players demand immediate feedback, the response a game gives to their input. This is unfortunately why guns seem to work so much better in games than diplomacy.
- **Wandering Wastes.** *Wandering* is the term we use when a player loses direction in a game and does not know what to do next. This is bad.
- **Interface Island.** The interface between the game and the player should be intuitive and transparent. This serves to draw the player into the game world.
- **The Verbal Vale.** Game design, at its heart, is deciding what the player can do. This is indicated by active verbs: run, jump, talk, build, and so on.

Your Classroom

Establish places in your game to remind students of class subject matter concepts. They can be physical locations or props as described above, elements of gameplay like PvP contests or story as in the beliefs of an alien culture.

Throughout the course of the semester, it was my plan to move the guilds from zone to zone. This meant that no guild would always be at the front or back of the class. The idea

was to break the common pattern of slackers with mobile phones in their laps, texting instead of learning. This worked well. At any given time, only two of the five guilds would be in the back of the classroom. Also, since the guilds were formed based on interest in a particular game idea and chosen roles, friends were split among the guilds, mixing those who weren't all that interested in participating with students eager to engage in discussion.

Your Classroom

Since then I have always tried to make certain that friends were not in the same guild. You may be doing this already when you form teams in your class. Having a group in class who hang out together can overbalance their influence in the guild. Grouping students with others they don't know that well can maintain a mix of ideas and approaches to assignments and teach a necessary skill—learning to collaborate with a diversity of co-workers—that will prove useful in workplaces yet to come.

The rotation of guilds from zone to zone came at a price. Up until this class, I had used a seating chart to teach myself the names of my students. The seating chart was next to useless because the guilds moved around the room every few weeks. It took me a lot longer than it had before to finally put names to faces.

Combat is a large part of the gameplay in many MMOs. Most of our game's combat was PvE.

In our case, PvE took the form of quizzes and midterm exam. Another example of flexibility these freestanding chair desks made possible was during PvP.

For PvP, introduced later in the semester, two guilds would face one another in two lines like opposing armies in the space in the middle of the classroom. The other guilds were still arrayed in a circle around them like the walls of an arena.

On the first day of class, as planned, I greeted them with the statement that they all had F's. But I quickly segued into the explanation of how the class would be run as a multiplayer game. They were the players. I was the Game Master.

PVE: PLAYER VS. ENVIRONMENT

Gameplay where players fight against mobs controlled by programming we call *artificial intelligence* or AI.

PVP: PLAYER VS. PLAYER

Gameplay where players are pitted against one another.

GAME MASTER (GM)

A Game Master is in charge of the gameplay in a multiplayer analog game, organizing game sessions, enforcing rules, and arbitrating disputes. Sounds a lot like a teacher, doesn't it?

AVATARS

We went through the syllabus. Players were required to generate avatar names for themselves; come up with a premise for a game they might like to design in class; and learn the rules to *Senet* which I had posted online. We would be playing and then discussing *Senet* during the following class session (Figure 3.4). The game's board and playing pieces have been found in the tombs of pharaohs, but the precise rules are lost. There are two main rule sets today. After playing the game the students were tasked with coming up with improvements on the rule sets and were then able to test each other's ideas in class.

One week from the first day of class students introduced their avatars with pictures representing them. The portraits of the avatars could be drawn by the students or simply be images they had found online or elsewhere. It's worth noting that while a number of the players did not consider themselves hardcore gamers, or gamers at all, everyone understood the concept of an avatar, although not its original source in Sanskrit. Since the class had no specific fictional game world avatar names ranged widely from Jake the Barbarian to Laser Rocket Arm and Princess Peach to Purple Haze.

A word on consistency in game design. Unless they are creating a world where anachronisms are specifically acceptable, game designers should normally strive for consistency in theme, story, events, characters, artwork, music, and so on. A consistent world is a world that encourages the player's willing suspension of disbelief and smooths the path to immersion in the game experience.

In a classroom, though, as in MMOs, the designer must deal with human beings wanting to make their individual stamp on the world, especially with their avatars. Everyone has their own ideas about what is creative or funny. So, for example, as much as a designer may

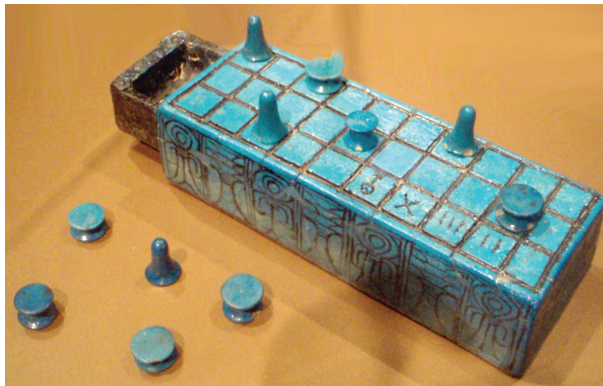


FIGURE 3.4 *Senet*, the ancient Egyptian game mentioned in the Preface.

strive to create a world that is true to a medieval fantasy setting, players may (and do) name their avatars just about anything. Like their choices or not, these are their choices. It provides them with a sense of ownership, and gives them a stake in the game, even as it may drive more consistency-minded, esthetically aware designers, teachers, and players up the wall.

Your Classroom

Other than the usual list of offensive words, let them come up with what they feel is a creative avatar name. Don't fight it. Embrace it! Somebody who wants to name their avatar *Zombie Apocalypse* should have that privilege. This gives students the feeling that they have meaningful choices. Giving players real choices in a game is called "agency."

Players took turns pitching their game premises to the class. The students then voted on which premises they liked the best. The highest five vote-getters became the games each guild would design.

I asked players to list their choices for which game they would like to work on in order of preference and to list what roles they would like to play. Listed in Table 4.1 are the guild names they chose and the titles of the games they would be designing.

AGENCY

Giving players agency means to give them meaningful choices that encourage their willing suspension of disbelief and draw them into the world of the game.

Your Classroom

Whatever the subject of your class, divide it into tentpole concepts and let each guild own one. For example, an algebra class may have many key concepts such as linear equations, graphs, functions, probability, etc. An English class studying grammar would have nouns, pronouns, verbs, adjectives, etc. Each of your guilds owning one or several concepts throughout the course of the class gives them a stake in every class member understanding them.

I then tried to make certain no one was assigned to a game that was not their first or second choice. Only a couple of students ended up with a lower choice of game they wanted to work on. So, if I had to give them their lower choice, I saw to it that they had a higher choice

of role on the team. A few also received second choices in both. After some initial shrugs and scowls, this system was accepted, and no complaints were heard, or excuses made later about what they were assigned.

And we were off. First, playing *Senet*; then crafting an analysis of its gameplay. Random dice rolls determined who would be responsible for the next class session's quests. Much to my surprise, the students not only did not mind this element of chance, they accepted it. More than that they seemed to enjoy it, commenting on the dice rolls as they would the tricks chance played on them in games.

Your Classroom

You probably already do this, but it took me awhile to learn to look for signs students are enjoying one assignment, but not another and to figure ways to adjust. MMOs can track player engagement with technology. They can pinpoint on a map where players are clustered (enjoyment) and empty regions that need to be more engaging (boredom). We don't have this luxury. We need to keep an eye on things. We can't wait for exams to find out who is paying attention.

The first reading quizzes in the guise of surprise attacks by mobs wiped almost the entire player base.

I mentioned learning from your mistakes in the Preface. Here is an obvious example. Up until the first random mob attack, reading quizzes were a weather report that might or might not turn out to be accurate. The quizzes were too dependent upon sometimes shaky presentations with my occasional interjections and clarifications. After most of the class wiped, many immediately started reading, and then challenging the presenters. Many, but not all.

As I've said, I hadn't been teaching very long. Yet even in my limited experience, I'd come to realize that not every student can be reached. It's a sobering, saddening fact. There were still a few students in this first iteration of the multiplayer classroom who, while they seemed to enjoy the time they spent in class, and even occasionally participated vigorously in discussions of specific video games they'd played, missed too many classes, and studied too little.

They were like players encountered in any MMO, wearing armor too fragile and wielding weapons too blunted, to survive.

WIPE

A disastrous encounter in either PvE or PvP where all members of a party of adventurers are wiped out by their opponents.

PEER REVIEW

Since these players were scattered among the six guilds, and a large amount of XP would be awarded both for the final game proposal and guild presentations, they may have assumed they would get a free ride on the backs of their guildmates. They seem to have missed that part of the syllabus called *Peer Review*. It has been in all of my multiplayer classroom syllabi. I'll repeat the version for this class. As indicated in the syllabus the XP awarded would be on the following scale.

PEER REVIEW SECRET BALLOT

1. Guild Leader: 100 pts.
2. Raid Leader: 75 pts.
3. Solid Guild Crafter: 50 pts.
4. Needs Rez: 25 pts.
5. Waste of Rations: 0 pts.

“Needs Rez” is an unfortunate condition where a particular player may have wiped in either PvE or PvP, and another player with the resurrection skill needs to bring them back to life. “Waste of Rations” was a wonderfully derogatory term I learned from my first manager in the games industry, François Robillard, a former captain in the Canadian army. As good as it was in describing someone who contributed nothing, I'd missed a better description. I would rectify that in the next class I taught.

Guild members ranked their fellow member's efforts in a secret ballot. There were two potential issues with this: First, all guild members might simply agree to give each other the full hundred XP. Second, a guild member with a gripe against another might grade that person down simply to punish them.

Here was another case, like random dice rolls, where I was surprised. In no guilds in the class did everyone earn 100 pts. It was clear from my own observation of their participation and ability that the hundreds were earned by those who received them. And when members were reviewed far lower, including one student who simply vanished a few weeks into the semester, it was clear they deserved the evaluation.

These low-performing students, every one of them, failed to take advantage of any of the other extra credit opportunities available, including the easiest one of all: farming (Figure 4.3).

In the class farming became a learning experience as a way to earn XP. We used as our textbook *Understanding Video Games: The Essential Introduction* by Simon

Egenfeldt-Nielsen, Jonas Heide Smith, and Susana Pajares Tosca (2008). It had been published just the year before, and I chose it because it was the only book I could find at the time that combined game development and game studies in one place, and was easy enough to understand for beginning students.

The problem with it is that it was apparently never copy edited, nor edited by anyone who knows anything about games. There are dozens of errors from simple typos to errors of fact, such as placing *Doom*'s release in the wrong decade. Our class farmed over eighty such errors for extra credit. Of

course, those who found the most needed the extra XP the least. The book's third edition was published in 2015. Hopefully most of the errors were corrected in the later editions.

As the semester progressed, I noticed a big mistake I had made in my quest system. The novelty of the students handling the lectures only went so far. Particularly when too many players were turning out to be no better than the most boring of teachers, presenting slides with black bulleted points on white backgrounds and then reading them aloud.

I managed to light a fire under some of the later presenters by encouraging the use of other resources like YouTube, but it would have been wiser to give them upfront examples of especially inventive presentations. TED talks are a great resource! Presentations would also improve when I began dividing the presentation grade into parts such as clarity of the presentation, and the inventiveness of its delivery. More on this later.

Other than calling the midterm exam a "Boss Mob," the most powerful mob in a level or dungeon, it was an ordinary exam. But I tried something different with reading quizzes later in the semester.

I'd always had an extra credit final question on the reading quizzes. For the last two quizzes, I added six more extra credit questions that players could earn in PvP Guild vs. Guild combat. I didn't change the seating for these two events. I wanted something similar to the buzzer game show contestants hit on TV, but I had no technology. I settled on giving each guild their own word to shout out, if they wanted to take a shot at the answer. The words were Laugh, Groan, Yell, Cough, Burp, and Cry.

Anyone on a guild could provide the answer, whether they shouted first or not. So, after a brief consultation among themselves, the guilds could collaboratively come up with the answer. This worked well. Everybody had a good time. Trash-talking between guilds was inspired. And everyone had a chance to share in the fiero. I would continue to develop and transform this idea in subsequent classes.

FARMING

Defeating the same mobs—usually much lower level than the player—over and over again as the most efficient way to gain levels and loot. Farming and then selling a game's virtual loot for cash in the real world became a huge problem for MMOs.



Pigskin Poker



Set-Up

- Give 5 cards to each player
- Place the remaining stack on the draw pile.

Game Play

- Flip a coin to see who starts on offense.
- Place the marker at the 20 yard line of the side the defense chooses.
- Each play both players choose a card from their hand to play. The cards are special “power ups” for different positions and different plays. It is written on the card what the advantage will be when matched with the opposing card.
- Offense then chooses pass or run.
- Then starts a series of dice battling, offense rolls first. Roll all 5 dice at once, keep which dice you want to build on. Then roll again choose the dice again. Then Roll a third time, after the third roll, you dice are fixed.
- Defense then rolls in the exact same sequence
- If the offense wins the roll the outcome is as follows (do not move yet)-
 - Run
 - 3 of a kind—5 yards
 - Full House—10 yards
 - Four card straight—15 yards
 - Four of a kind—20 yards
 - Five card straight—25 yards
 - Five of a kind—touchdown
- If you choose to pass the yardages double.
- If the defense wins the roll the yardages become negative (sack). If the defense wins with a five card straight, it is a sack for a loss of 25 yards. If the defense rolls a five of a kind it is an interception for a touchdown. If the defense rolls 5 aces, the opponents quarterback is injured for the rest of the game and passing yards are cut in half.
- Before the offense moves, you must apply the outcome of the card play as well. (directions on the cards)
- Down and distance is consistent with real football.
- On fourth down the offense may choose to punt or kick a field goal. No cards are used for kicking.

- Punt
- Each player rolls one Die simultaneously 5 Times.
- If the offense wins—
 - All 5 rolls—offense receives a first down via roughing the kicker.
 - 4 rolls—offense places the ball wherever they like for the opponent to take over.
 - 3 rolls—offense punts the ball 40 yards.
 - 2 rolls—offense punts the ball 30 yards
 - 1 roll—offense punts the ball 20 yards.
 - 0 rolls—defense blocks the punt and takes the ball at the line of scrimmage.



- Field Goal
- Battle roll just like a punt
- The max field goal is 60 yards
- If the offense wins—
 - All 5 rolls—FG made from 60 yards or less.
 - 4 rolls—FG made from 50 yards or less.
 - 3 rolls—FG made from 40 yards or less.
 - 2 rolls—FG made from 30 yards or less.
 - 1 roll—FG made from 20 yards or less.
 - 0 rolls—Defense blocks the kick and takes over on offense from the original line of scrimmage.



Pigskin Poker

FIGURE 3.5 Anytime Football’s rules for “Pigskin Poker.”

Winning

- 7 points are awarded for touchdowns.
- 3 points are awarded for field goals.
- First player to reach 35 points first wins the game.

The success of these two events was to give me an idea for a new, much more game-like, approach to preparing for the midterm.

Prototypes were created for the games that students were designing. Rules were put online a week before they were to be played by the other guilds (Figure 3.5).

No MMO is made up of a single game mechanic where players are only required to do one thing to achieve a single result. There are many different types of minigames built into them. There were minigames in this class as well. Students played *Senet*, their own game prototypes and engaged in PvP as I've just described. Ample opportunity to play a variety of games can be part of a multiplayer classroom, just as it is an MMO.

After the prototypes were played and analyzed, it was time to pitch their ideas to publishers. These “publishers” were role-played in this class by two fellow faculty members, Ted Castronova and Norbert Herber, both familiar with video game design and the gaming industry. They listened to the pitches and then in character critiqued them. This was a good idea of what the students might expect should they decide to pursue careers in the commercial video game industry. I've tried to do this with every class I teach where students have a final project. When I taught screenwriting, I brought in actors to read selected scenes aloud. Doses of the real world can be inspiring and encouraging. If the real-world scares off someone who is uncertain brain surgery is their dream career goal, good. It's better to do it early rather than later.

At last the final game proposals were due and XP awarded. Another way that the classroom experience maps directly to games occurs when there are a number of graded assignments along the way. Video games would be incredibly boring and discouraging if the only reward came after defeating the boss mob on the final level. Incremental rewards are extremely important for keeping players engaged.

TABLE 3.1 Terminology Map

Student	Player
Teacher	Game master
Student name	Avatar name
Team	Guild
Write	Craft
Take quizzes/exam	Defeat/fight monsters (Mobs)
Presentations	Quests
Individual presentations	Solo quests
Two or more students not in the same guild presentations	Pick-up group quests
Lengthy reading assignment presentations	Guild quests
Real-world abilities	l33t skillz
Section of the classroom	Zone

(Continued)

TABLE 3.1 (Continued) Terminology Map

Quizzes/midterm	PvE
Student competitions	PvP
Teacher	Game master
Entire class does badly on a quiz	Wipe
Take quizzes/exam	Defeat/fight monsters (Mobs)
Copy editing	Farming
Midterm exam	Boss mob
Incremental grades	Rewards

One final point: Games “grade” a player’s performance by attrition. While you could lose XP and even a level in some early MMOs like *Everquest*, today a player is always gaining XP when they are victorious. This way of looking at achievement has something to teach us educators. Letter grades—the way we align them as penalties for failure—and how our educational system focuses on achievement learning—can hinder student progress; the direct opposite of XPs mounting to the stars. We will explore this important difference more later on. Time now to have our first look at multiplayer classrooms that teach subjects other than games.

Here are the real-world terms in this chapter that map directly to game terms (Table 3.1).

QUEST 3 WALKTHROUGH

- Multiplayer RPGs are a good map for a multiplayer classroom, encompassing as they do both multiplayer gameplay and storytelling.
- The multiplayer classroom must be flexible enough to give students agency to make choices in the class as long as those choices don’t disrupt learning.
- Watch for signs students are enjoying one assignment, but not another. We shouldn’t wait for exams to find out who is paying attention.
- Setting limits also helps to keep the scope of projects manageable. (Fundamental Concept) Better work is done when the parameters of an assignment are much tighter than “Do whatever you like.” Focused assignments force more creativity from students than assignments that give them too much latitude (Fundamental Concept).
- Setting limits also helps to keep the scope of projects manageable. (Fundamental Concept) Learn by doing, not by being told what to do. (Fundamental Concept)
- The type of game your multiplayer classroom becomes is entirely up to you.
- Reward students for attending a class instead of punishing them for missing it. (Fundamental Concept)

CASE STUDIES INTRODUCTION

Just over a year had passed since Jesse Schell's talk that began the interest in the multiplayer classroom that resulted in the first edition of this book. Yet already educators elsewhere were trying this new form of teaching in their own classrooms. I asked those on the forums of our website who were designing their classes as games, if they would contribute short case studies of their experiences.

One of the first objections raised to my idea of a multiplayer classroom was that it might work fine for a game design class, but it probably wouldn't work in other courses. It was important to me that the subject matter in none of these case studies was related to games. I received many contributions, finally settling on the eight that I felt provided the most varied and instructive approaches to multiplayer classrooms.

Five courses were taught at universities or community colleges; two were high school classes; and one is from a middle school. They are from all parts of the United States: Arizona, Arkansas, Florida, Hawaii, Illinois, Louisiana, Texas, and Wisconsin. The fields of study are History, Math, Biology, Computer Science, Media, and three in Education itself.

When I began planning this second edition I turned to the Multiplayer Classroom Facebook page where we now have around 1,600 likes and followers despite the fact that I am woefully bad at maintaining the page. Where the first set of case studies were from all over the United States, respondents who answered my call for new contributors will reveal how interest in the multiplayer classroom is now international in scope. In addition to histories from Florida, Wisconsin, and Nebraska, we have added contributors from Canada, the United Kingdom, France, Denmark, and Korea. They range from a kindergarten English as a Second Language (ESL) class to college.

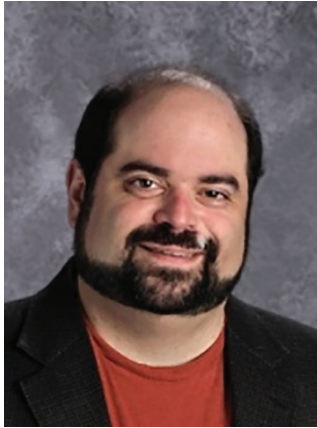
Some are simply stories; others are more formal articles. All share two things in common: an abiding interest in achieving the finest education we can provide for our children and a curiosity about coursework designed as games.

The first edition case studies have been collected in Section Five. The new case studies are scattered throughout this second edition of the book, beginning on the next page to give you an occasional oasis of relief from the desert of my prose.

Here in their own words are these educators' adventures in designing coursework as a game.

CASE STUDY 1

Waunakee High School



Aaron Pavao

Computer Science Teacher

Waunakee High School

Waunakee, Wisconsin

Introduction

I'm Aaron Pavao. This case study is an update—or maybe just a continuation—of a study published in the first edition of this book. I was just dipping my toes into education-as-game design, and a comp copy of the book (thanks to Mr. Sheldon and his publisher) helped me craft a more expansive and engaging game for my students. Here's how the past decade or so unfolded.

It wasn't a hard sell to students to convert their courses from classrooms into games. In 2010, almost everyone in high school had a video game in their browser histories, if not their pockets. Waunakee had a tradition of competition, so it was easy to convert classes to the multiplayer model. And in the words of Grace Hopper, a pioneer of computer programming, "If it's a good idea, go ahead and do it. It's much easier to apologize than it is to get permission." So, it was easy to get the ball rolling in my school (Purington et al., 2003).

Hopper also said, "Humans are allergic to change." The hardest part of running a multiplayer classroom is designing it and then improving it year to year (Schieber, 1987). It's a combination of brilliant ideas and crashing failures, and testing is the only way to tell

which is which. And it works on top of the usual business of teaching: preparing lessons, finding or creating curriculum, communication with parents, professional development, and so on. But it's been worth it so far.

The game we play is such a part of our classes both the students and the teacher (me) use the terms “student” and “player” interchangeably. The game doesn't have a name—it's not really a themed game, it's just Waunakee Computer Science. It's a team game, and players are organized into guilds. Students start at level 0 and level up through the semester, with each course having its own maximum level based on the curriculum for that course. Levels are gained by earning XPs for completing work, with differentiation handled through a set of side quests. The game has an economic system through which students are rewarded and can purchase advantages for themselves. Players do not take tests, but rather take on boss fights.

Alliances, Nations, and Guilds

Games with themes tend to be more engaging to players, and even though this game has no theme it is useful to include thematic elements. We achieve this by letting players choose their own identity. Each section of a course is an alliance. Each alliance is divided into two nations, and each nation is further divided into guilds of three to four students. Students choose a name for their alliance, nations, and guilds at the beginning of the semester, each of which fits into their chosen theme. Each alliance of a course is in competition with other alliances taking the same course, with an Alliance Trophy as a traveling award between the two or three sections.

For example, this past semester featured the Red Team (including the nation, Fire Nation and guild, Communist Party) versus the Blue Team (with Cerulean City and Squirtle Squad, among others). The students had a lively rivalry going, which inspired them to succeed in alliance challenges and had them take on side quests to take or keep the Alliance Trophy throughout the semester.

Each alliance has a board in the classroom to decorate with guild flags, alliance banners, student pictures, and awards and achievements that they earn over the course of the semester (see Figure 3.6).

The guilds and nations are set up ahead of time by the instructor. Ideally, this is to balance students' strengths to complement one another, but the grouping of students is never an exact science. To help foster team work, most classroom work defaults to group work in guilds, with a number of side quests and achievements that must be completed by the entire guild.

XPs and Levels

Most games that have a leveling system feature fast advancement at low levels with a tapering off of advancement as the player reaches higher levels. It's a good system that helps increase player engagement. Unfortunately, limitations of our school district's education



FIGURE 3.6 Alliance boards with banners, posters, and achievements.

management software make this very difficult when leveling is set up the traditional way, with each level requiring progressively more XPs to reach. To keep that experience curve, each level requires a flat hundred XP to gain, and the XPs per assignment begin very high in the beginning of the semester and are reduced over the course of the semester. This maintains the leveling curve while making level tracking easy to do in the grading software.

Assignments

Day-to-day school work and homework—the artifacts created by students that demonstrate their understanding and progress—make up the bulk of the XPs players earn during the semester. The XP value of each assignment is based on the amount of effort expected of the students. This is modified by where the assignment falls on the timeline of the semester, to keep the level curve similar to that of other games. Much like in a video game, if a student turns in a performance that is less than a certain quality, they must fix what is wrong and turn it in again. This iterative process, cribbed from games, gives students a chance to learn from their mistakes. A late assignment, on the other hand, cannot be turned in. Sort of—read on.

Challenges

Games are engaging in the classroom as well as at home. Classwork is presented in the form of a game, whenever that is possible. Students compete with one another for tokens and

with certain benchmarks for achievements. Outstanding work is displayed with a fridge magnet on a refrigerator door bolted to the wall.

Long-term lessons and activities are laid out as challenges, with the goal laid out at the very beginning. Each subsequent class lesson is introduced in terms of how that particular lesson's outcomes pertain to the long-term goal. For example, the Communication Challenge outlines a game in which players convert a message into binary, encapsulate it with error correction protocols, and transmit it through an opaque barrier, all before they know anything about binary, encapsulation, or error correction protocols. Successful challenges are awarded with XPs, tokens, and/or achievements.

Boss Fights

When you are given a new tool or weapon in a video game, you are introduced to it when you first acquire it. Then, you are given a series of small challenges or exercises to learn to use the new tool. Finally, a boss appears that you must fight using your new tool. If you fall to that boss, you often respawn just before the boss battle and try again. You are not allowed to proceed until you have defeated the boss. It would be strange if you instead respawned at a point after that boss without first achieving proficiency in your new tool—I feel the same way about unit tests.

Rather than take tests, students take boss fights (see Figure 3.7).



FIGURE 3.7 Students working on a boss fight.

A boss fight looks very similar to a test, perhaps with fewer questions about knowledge and comprehension and more about application and evaluation. When the student turns the boss fight in, the instructor immediately checks it and marks any incorrect (or insufficiently correct) answers. The boss fight is then returned to the student to perfect.

Our school district requires grades, and so this system needs to convert into XPs. Each boss fight comes with the student's "life bar" of eight hearts. Each time a boss fight requires corrections, the student loses one heart, regardless of the number of corrections required. Each lost heart reduces the XPs the student can earn. The final heart, worth only 60% of the maximum XP value of the boss fight, cannot be lost, but instead turns the boss fight into homework the student must complete.

This system has a couple of beneficial side effects. One is that it helps students with test anxiety because XPs are additive, not averaged. No matter how badly a player performs on the boss fight, their grade can only increase.

Additionally, the boss fight can make the test time hectic for the teacher, but by the end of it all you have to do is put the grades into the computer, which is a nice change of pace. I can spend my prep periods actually preparing rather than grading.

Tokens

Many games feature an economic system of some sort, and so does ours. Students can earn tokens, physical coins made of plastic and custom manufactured in our school's Fab Lab, for competing in challenges and completing side quests (see Figure 3.8).

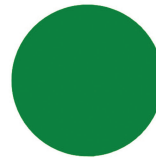


FIGURE 3.8 Custom-made tokens.

There is a menu of items and benefits available from the instructor, including the ability to turn in a late assignment, the use of a notebook on a boss fight, the ability to team up with one's guild on a boss fight, a health potion or shield on a boss fight, purchase a small rubber duck, or buy the right to paint one of the bricks in the classroom walls (see Figure 3.9).

We have found it important that this part of the game retains intrinsic value to the students, rather than be an extrinsic reward. Thus, once a student has a token, the instructor does not care what the student does with it. Students may spend those tokens either strategically or whimsically, as they choose. They may (and do) trade tokens with one another for goods and services, and sometimes for real money—much like a real-life MMO, our game's currency occasionally has a fluctuating cash value set by the market.

What can I get for this token?



Turn in a late assignment	1 token
Use notes in a boss fight	1 token
Join guild in a boss fight	1 token/player
Shield: Block one hit on a boss fight	2 tokens
Potion: Heal one heart in a boss fight	3 tokens
A small rubber duck	10 tokens
Change team name	12 tokens
Reinstate food privileges for the class*	16 tokens
Make a guild member trade	18 tokens
Unlock a Loot Crate	20 tokens
Paint a Brick	25 tokens

*Food privileges may be revoked again.

Prices and products subject to change without warning. Tokens may be dangerous if swallowed. If you have asthma, epilepsy, a heart condition, or think you may be pregnant, please see a gamemaster for more information. Do not taunt math tokens. If flu-like symptoms occur, consult your doctor. No user serviceable parts inside. Fnord.

FIGURE 3.9 What the tokens buy.

Side Quests

Sometimes a student wants to pursue a subject more deeply, or more broadly, or they just want tokens or achievements. Those students can achieve these goals through side quests. Each unit has its own set of side quests, each of which has a set award of tokens or achievements (or both). The students seek out the side quests on the course Web site.

I find extra credit assignments are a bit of a paradox in education. Someone who needs the extra credit should have been doing the normal credit in the first place, and if they had then they wouldn't need extra credit. Side quests do not offer XPs as awards, and so they are a way to offer "extra credit" with a reward that is meaningful to the student without reducing the importance of the curriculum.

Achievements

Achievements are, as they are in video games, a way to show off what you've done in your Computer Science coursework. They are goals that are outside the usual curricular program and denoted with a small "1" custom button created on a button maker. As with tokens, once they are given out it is up to the student to decide what to do with them. Our students like to display them on their backpack straps, with some of the most active students walking down the hallways with a display that would make an army general envious.

Outcomes

As is the theme with most classrooms run as games, the overall outcomes of the programs over the past decade or so are positive. Students have a goal at the start of each semester, with a clear path to success. They have immediate feedback on their progress and their work during class time, in their homework, and in their assessments. As a result, less than a half dozen students have failed in that time span. Most students recommend the courses to their friends, and as a result Waunakee has more Computer Science sections than most public schools in the state.

One unexpected negative outcome has been communicating the game's rules and expectations to parents. I do not know if this is true of all multiplayer teachers, but I usually have conferences with two to ten parents per year to explain how the game works and how it affects the expectations of their children.

Next Year

Next school year, I'm experimenting with something new. I've teamed up with a professional actor and playwright to create a game with a fictional story arc for the two-semester introductory programming courses. The first semester will be a cooperative game, with each guild's performance affecting the entire alliance's boss fights. The first semester will end on a cliff-hanger in which the group splits into two factions who compete during the second semester.

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IU Multiplayer Game Design

AS WITH THEORY AND Practice of Game Design, I had taught Multiplayer Game Design before. In the spring of 2008, it was a regular lecture, workshop, and review class. Instead of a combination of practical game design and video game studies course, this class was, as I said in the syllabus, intended to introduce students to the “design elements and production requirements necessary to create and maintain online games.” In short, it involved far more practical application than theory. As noted previously, concept documents are a type of game proposal. In our case, these were 30-page, double-spaced documents describing all aspects of the game ideas from story and gameplay through budget and marketing.

As our primary text, I chose Richard Bartle’s *Designing Virtual Worlds*, published in 2003, still the best introduction to virtual world history and production to date. If you have an interest in attempting to create one of these, read this book.

A difference between traditional methods of teaching and the multiplayer classroom is that there are often many more assignments in a multiplayer classroom. This is precisely what the students expect. In an MMO, there is an unlimited supply of repeatable tasks to guarantee that players can always level up. In a multiplayer classroom, there must be enough assignments to replicate that aspect of gameplay (many opportunities for XP) and rewards (many opportunities for incremental rewards).

VIRTUAL WORLD

A virtual world is a digital world that may or may not be a game. *Second Life*, still with us after sixteen years, is not a game, even though many can experience it simultaneously, and it contains games. Virtual worlds are often *persistent* worlds, meaning that time passes within the world even when a person’s avatar may not be present. *World of Warcraft* is a persistent world. *Fortnite Battle Royale* is not.

GRADING AND ATTENDANCE

In my earlier classes, perfect attendance was rewarded with 100 pts. Students who missed classes would have points deducted from that total. In a multiplayer class, students are awarded XP for every class they attend.

This may sound like the same thing. And in mathematical terms, it is. However, the feeling for the students is different. And this method of adding points instead of subtracting them is familiar to them from games. They are more comfortable with it. They know how to game this system: show up and gain XP. It's easy!

Experience immediately revealed the benefit of this subtle change. Introduction to Game Design had nearly perfect attendance: three absences that were unexcused, but I was informed of them in advance, one excused absence, and only one where a student failed to show up, although he apologized after the fact.

Your Classroom

Rewarding students for attending is such an easy change from threats and penalties if they do not attend. Try it. The result will be happier students you will see more often.

It wasn't until the Designing Interactive Characters class, the second class I taught at Rensselaer Polytechnic Institute, that I finally introduced a system of leveling that actually *began* to solve the problems of students leveling too slowly at the beginning and being uncertain how they were progressing. It's no coincidence that it is much simpler with multiple graded tasks.

More work for the teacher? Obviously. More *grading*? Ick! However, the workload is balanced by the fact that individual lessons are not prepared by the teacher to present to students. They do the preparation. The teacher is the Game Master. All you need to do is sit back and moderate their teaching. If they skip an important concept, or fail to explain it sufficiently, you can always step in. The multiplayer classroom takes more planning in what we call the preproduction stage. But once the game is released (when students are playing it), all of that work pays off in classes that are more fun for you, as well as the students, without sacrificing the quality of the learning experience.

There is a very good reason to require so many presentations from the class and I continue to require them even as you will see I have moved away from students simply presenting all of the textbook content. I provide several ways to require presentations. It is not teacher laziness that prompted the idea in the first place and I strongly believe it still has merit. A major part of any job these students will get after they graduate is the opportunity for promotion. In games an artist will start out creating small pieces, then move to more complex art, and

so on. If, however, any member of a team wants to advance to become a team leader, they cannot work in isolation. They must learn to communicate their ideas to others.

There are three important ways to communicate, all of which I cover in every class, regardless of the subject matter. First, they must communicate through writing, second is articulating their ideas to another individual, and third is presenting those ideas to a number of people simultaneously. The more they practice each skill, the better their chances of advancement. Some students will struggle with speaking in front of a group. That's why I include team presentations to limit their individual exposure and constrain the amount of material a speaker must cover solo. I do not give up on them, I press them to rehearse and coach them in private when necessary.

One of the features of the multiplayer classroom is that the students engage in collaborative, as well as competitive, activities. They are not focused entirely on their individual grades. They are given opportunities to help their guildmates and other students in the class. Working together on the final projects is an obvious example, and it has been a part of classrooms long before any became a multiplayer.

SYLLABUS

It is time we had a look at the Spring 2010 syllabus of Multiplayer Game Design (Figure 4.1).

Indiana University, Bloomington
Department of Telecommunications

T366: Multiplayer Game Design

Section 13353
Spring 2010
MW 11:15-12:30pm
Room 226 RTV Building

Instructor: Lee Sheldon
Office: Room 311 RTV Building
Phone: 855-6840
Office Hours: MW 10:00-11:00am
Email: csheldo@indiana.edu

Prerequisites: Permission of Instructor

Description

Focus is on massively-multiplayer online games and virtual worlds. Students will be introduced to the design elements and production requirements necessary to create and maintain online games. We will study various existing worlds from major commercial worlds like *World of Warcraft* to free web-based games.

Format

This class is designed as a multiplayer game.

Class time will be divided between fighting monsters (Quizzes, Exams etc.), completing quests (Presentations of Games, Research etc.) and crafting (Personal Game Premises, Game Analysis Papers, Video Game Concept Document etc.).

FIGURE 4.1 Spring 2010 syllabus.

(Continued)

At the beginning of the semester everyone in the class will choose and name their avatars. The first task is to craft the premise of a multiplayer game you would like to design. Guilds to craft these games will be chosen, balanced as closely as possible by 133t skillz and interests. Guilds will choose their names. There will be six guilds of six-seven members each depending upon final class size.

Grading Procedure

You will begin on the first day of class as a Level One avatar. Level Twelve is the highest level you can achieve:

Level	XP*	Letter Grade
Level Twelve	1860	A
Level Eleven	1800	A-
Level Ten	1740	B+
Level Nine	1660	B
Level Eight	1600	B-
Level Seven	1540	C+
Level Six	1460	C
Level Five	1400	C-
Level Four	1340	D+
Level Three	1260	D
Level Two	1200	D-
Level One	0	F

*Your level will be determined by experience points (XP) on a 2000 XP scale. You gain XP by defeating mobs, completing quests and crafting.

- Solo: Craft your own game proposal. (Written, 50 pts.)
- Solo: Present your game proposal to the class. (25 pts.)
- Solo: Sell your game proposal to the class. (**Extra credit.** 25 pts.)
- Raid: Guild reading presentation (75 pts. each person, 1 of these per guild)

- Pick-Up Group: 2-Player reading presentation (150 pts. each person, cannot team with fellow guild member) **OR**
- Solo: 1-Player reading presentation (150 pts. but easier than above)

- Solo: Craft 3 pagere port on MMO article (Written, 75 pts.)
- Solo: Craft 3 page analysis of MMO-based research topic (Written, 100 pts.)
- Solo: Craft 5 page analysis on MMO of your choice (Written, 125 pts.)
- Solo: Defeat Five Random Mobs (5 written reading quizzes, 250 pts. total, 1 **extra credit** question per quiz)
- Solo: Defeat Level Boss (Midterm Exam, 400 pts.)
- Guild: Paper Prototype Presentation (50 pts. each)
- Guild: Craft Final Project: Video Game Concept (Written, 400 pts.)
- Solo: Class attendance (300 skill pts. total, 10 to start. 290 additional pts. at 10 pts. per day of attendance)
- **Extra credit** for early completion of final proposal (10 pts./Monday; 5 pts./Tuesday; see calendar)
- Solo Camping: Text editing (**Extra credit.** 1 pt. per mistake. 50 pt. cap per player. First come first served. Each mob only spawns once.)

FIGURE 4.1 (CONTINUED) Spring 2010 syllabus.

(Continued)

- Group: Peer Review Secret Ballot (**Extra credit**. 0-100 possible XP as follows:
 1. Guild Leader 100 pts.
 2. Raid Leader 75 pts.
 3. Solid Guild Crafter 50 pts.
 4. Needs Rez 25 pts.
 5. Leroy Jenkins 0 pts.

Grading is rigorous. Spelling, grammar and punctuation must be proofed. Points will be deducted otherwise.

Attendance and Conduct

You are expected to attend every class. Assignments are due at the *beginning* of every class. Late assignments will subtract from the grade for that assignment, one half letter grade for each day the assignment is late.

Plagiarism, submitting assignments written by others, and other forms of academic misconduct are governed by university policy. In a word: DON'T.

Classroom conduct: Participate with civility and an abiding appreciation for the power of words. Respect others, even those who hold opposing views.

Required Text

Designing Virtual Worlds. Richard Bartle.

Character Development and Storytelling for Games. Lee Sheldon.

Suggested Reading

Developing Online Games. Mulligan and Petrovsky.

Massively Multiplayer Game Development. Thor Alexander et al.

Synthetic Worlds. Edward Castronova.

Community Building on the Web. Amy Jo Kim

My Tiny Life: Crime and Passion in a Virtual World. Julian Dibbell

A Theory of Fun. Raph Koster

Flow: The Psychology of Optimal Experience. Mihaly Csikszentmihalyi.

FIGURE 4.1 (CONTINUED) Spring 2010 syllabus.

The syllabus for the second multiplayer classroom is very similar to the first. The main difference was the shift from all video games to multiplayer games, specifically persistent worlds. This class did not focus on the multiplayer versions of solo-player games.

The XP leveling was the same with the same faults we discussed in Quest 3. The methods of forming guilds, and so on, were the same. And students would again be responsible for quests, presenting reading material in class.

Topics for crafted papers were made more suitable for the focus of the new class. Students reported on an MMO article, analyzed an MMO-based research topic, and crafted a longer analysis of an MMO of their choice. This could be a game they were already playing, or one they started soon after beginning the class. The first major change to the five reading quizzes (random mobs) was another chance for players to help their guildmates, but this was an ad hoc choice I made after the semester had started.

Solo camping remained the same on the first iteration of the syllabus, but unfortunately (or fortunately, depending upon your point of view), our main text, Richard Bartle's *Designing Virtual Worlds* (2003), was much better edited than *Understanding Video Games: The Essential Introduction*. (Simon Egenfeldt-Nielsen, Jonas Heide Smith, and Susana Pajares Tosca, 2008).

Instead, players would be tasked with building a glossary of MMO terms. The first player to suggest a term and definition received one point of XP. How did the switch from farming typos and mistakes in the Theory and Practice of Game Design class to glossary building in Multiplayer Game Design work out? Not so well. In the first class players were eager to prove their knowledge was greater than the textbook's. And the exercise of finding mistakes forced them to read carefully and learn some spelling and grammar along the way. The glossary proved to be little more than tapping into their firsthand knowledge or collecting data from the Internet.

The other change was replacing François' "Waste of Rations" with "Leroy Jenkins" in peer review when describing a guild member who contributed nothing to the final concept document. Leroy Jenkins was by far a more appropriate choice for MMOs, even though I misspelled his first name. It is supposed to be "Leeroy."

Leeroy's name, misspelled or not, has entered the realm of legend as a meme on the Internet—beyond even MMO players or other video gamers. Clearly, whether the record of his deed was staged or not, his name deserves to honor those who fail to contribute positively to their guild's efforts.

How did the actual class differ from the syllabus? More than I expected. How did this second iteration of the multiplayer classroom work? Much better than I could have dreamed.

CAMPING

Camping means remaining in a single geographical location to repeatedly farm a mob each time one spawns.

LEEROY JENKINS

Leeroy Jenkins was an avatar created by *World of Warcraft* player Ben Schulz. Leeroy, absent from his computer while the complex strategy at the beginning of a major boss raid was discussed, returns and impatiently charges the boss on his own, resulting in a wipe of the entire raid. Videos of the raid can be found on YouTube. There has been some discussion as to whether or not the video was staged.

TABLE 4.1 Terminology Map

Building a glossary	Camping
Noncontributing team member	Leeroy Jenkins

The real-world terms in this chapter that map directly to game terms are in Table 4.1.

Multiplayer Game Design was taught in the Radio/TV Center on the Indiana University, Bloomington campus. At that time the Department of Telecommunications, where I was an assistant professor, was housed there. Unfortunately, the furniture in Room 226, where I taught a number of classes, was not nearly as flexible as the older-style classroom in Ballantine (Figure 4.2). Gone were the chair desks—battered, uncomfortable, and perfect—replaced by melamine tables not really designed to be continually lugged around.

When word got out about the first multiplayer classroom, we had students asking to sit in at least for a class or two. When students heard another multiplayer class would be offered in the spring, we had to turn people away. As it was, Room 226 was not built to handle the forty students we managed to cram in. Every chair was filled.

With students locked into rows the zones could not be as elegantly separated as in the Ballantine classroom where guilds could maneuver chairs to speak to one another, or where opposing guilds could face off in intellectual PvP battles. Instead, members of the six guilds—four with seven members, two with six—would each be clustered together in a couple of rows that were designated as zones. This time the zones were named after prominent designers of virtual worlds.

As I moved guilds from zone to zone throughout the semester, they were required to answer questions concerning each of the people the zones were named after for extra credit, another way of reminding students of class subject matter.



FIGURE 4.2 RTV Room 226.

ROLES

After everyone chose avatar names and pitched their game ideas to the class, they voted to determine the top six ideas they would be crafting concept documents for. I then spent several hours sifting through their choices of the games they wanted to work on and the roles they wanted to play. This process of balancing the guilds is one of the most difficult tasks I faced, although I'd had the same challenge in the iterations of the classes before they became multiplayerers.

Your Classroom

You of course will divide your students according to landmarks you establish based on your subject matter. Whatever you ask them to choose, it's important to try and give everyone either their top first or second choice.

I wasn't fully aware of the concepts of extrinsic and intrinsic motivation yet, even as I was using them. Too late in the semester I had an idea. What if at the beginning of this class I had asked the students to write down the answers to some simple questions about their major (there was no game program at IU yet), year, hobbies, interests, and talents. There might be a way I could add the results into my balancing the guilds. I wanted to give each member of a guild a chance to shine, to do something special not just for themselves, but something that would benefit the entire guild. The only artist in a guild would be able to contribute art. But what about someone with a skill or interest that did not directly map to one of the various assigned roles? What if we had a gymnast, a history buff, a chemist, or someone fluent in another language? Could the game or its narrative include them as well? I didn't see why not. I made a note to pursue this idea in the future.

MMOS AND COMMUNITY

Quests in the class were again presentations of textbook material, and I began the class by giving them examples on how to be creative in their presentations. This was the first class that added inventiveness to the presentation grade. Quests were again solo, pick-up groups from different guilds, and guild presentations. The pick-up groups were important. Because they were undertaken only by players in different guilds, they were an opportunity for players to work with other players they were not used to. This helped foster a sense of community in the class as a whole. Community is a very important word in MMO design.

Also, I did not require that all guild members participate in guild presentations. One member could have presented, and all guild members would have shared in the XP. I was concerned this might make it easier for the students more uncomfortable in front of a group to not participate in larger presentations. I am very pleased that no guild has ever

chosen to do any variation of this in any of the multiplayer classes. All guilds to this date have elected to evenly divide up the labors in group presentations. Whether this is due to the attitude, “If I have to do this, we all will.” Or if it is from a sense of fairness or solidarity, I don’t know. Whatever it is, it works for me!

In MMOs, players will discover a new technique to defeat a difficult mob, the most lucrative items to craft and sell, the location of NPCs necessary to complete a quest, and so on. They will then share this information either within the game, on websites dedicated to the game, or general giant internet platforms like Reddit. In the Theory and Practice of Game Design class, I planned to hide some quiz answers, taped to the bottom of chairs in each zone. Students would still have had to match the answers to the questions, but they would have been encouraged to trade the information with one another. I felt this would foster classroom discussion and interaction, even from those who would not easily take part. Plus, it would aid in general community building.

Some torn ligaments in my ankle prevented me from getting across campus fast enough to beat students to the room. If anybody saw me planting clues, the game would have been up, so I tabled the idea.

Your Classroom

I have yet to try this kind of physical gameplay in the classroom, but I think it would appeal especially to younger students and would reward the minimal effort required to incorporate it into the theme or narrative of the overall game.

MOTIVATION

I allowed the class to vote on the type of “random mob” reading quizzes they wanted. PvP, with the guilds taking turns answering questions selected by a die roll, was preferred by the class to the usual solo written quiz, with only one exception. This student was in both of the first two multiplayer classrooms. She pointed out that once her guild discovered she read and studied diligently, she worried that they would all relax. In fact, the other guild members challenged themselves to come to her aid.

As before, the reading presentation quests were delivered to the class by their fellow students, with questions and comments from me. Again, these players started out with PowerPoint for the most part. I was determined not to repeat the last class, which often read their bulleted lists aloud. So, I coached them on how to deliver engaging PowerPoint talks and expressed my hope that they would explore innovative approaches to delivering the material. Most students began supplementing their talks with illustrations drawn on the whiteboard and YouTube videos, as a few had before.

Then came a breakthrough: one guild, Guild-a-Bear, built their presentation as a game! They started with a sophisticated PowerPoint template found on the Jefferson County Schools in Dandridge, Tennessee website, credited to Mark E. Damon. They would present two or three slides and then seamlessly switch to a version of the game *So You Want to Be a Millionaire?* Then players would race to answer multiple-choice questions based on the small slice of material they had just covered. Winners got candy. They had the full attention of their classmates for an hour. It was awesome! Another guild, The Posse, wrote a script for part of the presentation and acted it out. Beautiful!

It's important to note that in both cases, the material covered was clearly presented. Because of the uniqueness of the presentations, retention seemed to be improved as well. On the midterm, the material covered by the *So You Want to Be a Millionaire?* game was nailed by almost everyone who had been present on the day of the game.

It's time to dive deeper into motivations. What is an intrinsic reward? What is an extrinsic reward? Candy is clearly an extrinsic reward. What does that mean exactly? I like the clarity of this explanation from the *ChangingMinds.org* website.

There is another issue with depending upon extrinsic rewards alone. By focusing attention on the reward instead of the action that triggers it, motivation is removed when the reward is removed. That may be fine for the duration of the *So You Want to Be a Millionaire?* game the students played in class. It may not be so fine for long-term retention.

MIDTERM EXAM

One of the major successes of this version of the multiplayer classroom was the preparation for our first boss raid (midterm exam). I came up with sixty questions (forty would be used on the exam), and we had a guild vs. guild PvP session.

EXTRINSIC MOTIVATION

"Extrinsic motivation is when I am motivated by external factors, as opposed to the internal drivers of intrinsic motivation. Extrinsic motivation drives me to do things for tangible rewards or pressures, rather than for the fun of it.

When I do something, I have to explain why I do it. If I am being rewarded extrinsically for doing it, then I can explain to myself that I am doing it for the reward. In this way, rewards can decrease internal motivation as people work to gain the reward rather than because they like doing the work or believe it is a good thing to do.

In effect, extrinsic motivations can change a pleasurable into work."

Here are the *only* rules I gave them:

- Each guild could only use a single copy of each of the two textbooks.
- They were allowed to look up answers in the books, *but they were required to close books before answering.*
- Guilds won the privilege of answering by shouting out their zone name (“hitting the buzzer”) to answer a question.
- The questions on the midterm would be in the order they were covered in class. For this prep, I randomly jumped around through the sixty questions.

At first, the person holding the book containing the answer would immediately memorize the answer, slam the book closed, and shout out their guild name. This worked fine for the first few questions, deliberately chosen for their simplicity. Most only required a word or two to answer. The students who had done the most reading were fastest at finding answers. In this way, the exercise was designed like leveling in an MMO. The questions got harder as we progressed. And one person attempting to memorize became problematic when faced with answers requiring multiple elements.

The player with the book would begin confidently, start to stumble, and end up looking sheepish when trying to instantly memorize a list of up to eight items, each composed of a sentence or two. (I did reduce the elements required in an answer to two or three on the actual exam. I believe I’ve already stated I’m not quite that sadistic.)

How did the guilds cope? One guild divided up the elements among their guildmates. The one with the book would find it, show it quickly to each member in turn, and they would shout out their zone name. Then each member, in turn, would answer with the one item they had memorized.

Pretty soon all of the guilds were dividing up the elements, one person taking only one. A couple of guilds were better at this than the others. The guilds that weren’t winning were forced to find a new tactic.

Finally, one guild realized that writing down the answers, or at least enough to aid memory, was faster than swinging the book around, showing members the answer in the book, making sure they had it, and then moving to the next. That guild dominated only a couple of times before the others caught on and duplicated their technique.

Three or four of the guilds were now neck-and-neck. It would take yet another inspiration from one to finally triumph.

At last a member of the guild which ultimately won took out a cell phone and photographed the page found by the member who had done the most reading. The book was

then calmly closed, and the correct answer was read from the cell phone. The other guilds called foul! That was cheating! But I pointed out that the rules said nothing about using cell phones. So, for the last few questions all guilds were using cell phones to simply photograph the needed page and then read the photos aloud.

I then pointed out to the class that their changing of strategies and tactics was a perfect example of how guilds learn to defeat mobs in their boss raids, learning from their wipes, modifying their approach, until at last they bring the beast down.

This was the best class that semester. They had a great time competing and trash-talking. I had a great time watching the essential core of the multiplayer classroom blossom, seeing them learn the way they learned in games, by failure, and then getting up, brushing themselves off, and trying again.

The winners received no XP. There was no extrinsic reward. There was, however, a very important intrinsic reward. Here again is a great explanation from *ChangingMinds.org*.

What was the intrinsic reward for the PvP mid-term prep? They had a great time learning. They had fun playing together. And the lasting extrinsic reward? The vast majority of the class did extremely well on the midterm, far better than *any* major exam I had given up until then, including in the first multiplayer classroom. All except three students earned a huge chunk of XP.

The debate between extrinsic and intrinsic rewards will continue. Clouding the issue is the fact that extrinsic rewards can have positive effects. As *ChangingMinds.org* (<https://changingminds.org>) points out, “when you want them to stop doing something: first give them extrinsic rewards for doing the unwanted behavior, then remove the reward.” And intrinsic rewards can have negative effects such as the “Over-justification Effect.” *ChangingMinds.org* one last time.

INTRINSIC MOTIVATION

“Intrinsic motivation is when I am motivated by internal factors, as opposed to the external drivers of extrinsic motivation. Intrinsic motivation drives me to do things just for the fun of it, or because I believe it is a good or right thing to do.”

And another from Michael Wu, researcher and scientist, in 2014: “An intrinsic reward is an intangible award of recognition, a sense of achievement, or a conscious satisfaction. For example, it is the knowledge that you did something right, or you helped someone and made their day better. Because intrinsic rewards are intangible, they usually arise from within the person who is doing the activity or behavior.”

OVER-JUSTIFICATION EFFECT

“This occurs where I attribute my behavior more to a conspicuous extrinsic motivator than to intrinsic reasons.”

What should be clear is that the multiplayer classroom comes with both extrinsic and intrinsic rewards, just as MMOs do. In a class, both can be just as compelling as in a game.

Again, since each guild member received the same grade for the concept document, I added a secret ballot peer review, so that anyone not contributing would receive a weighted grade. And again, I was concerned that they would simply give each other equally high marks or that personal animosity might factor in. Yet, again, I saw no evidence of either in their rankings. The assessments they made coincided with my own observations.

Multiplayer Game Design was the last class I taught at Indiana University. I accepted an associate professor position at Rensselaer Polytechnic Institute in Troy, New York. I took the multiplayer classroom with me.

QUEST 4 WALKTHROUGH

- A difference between traditional methods of teaching and the multiplayer classroom is that there are often many more assignments in a multiplayer classroom.
- There are also many more incremental rewards as in a game.
- In a multiplayer class, students are awarded XP for every class they attend, they are not threatened or penalized for missing class. The boost this simple change gives to attendance is substantial. (Fundamental Concept)
- There are three important ways to communicate, all of which I cover in every class, regardless of the subject matter. First, students must communicate through writing, second is articulating their ideas to another individual, and third is presenting those ideas to a number of people simultaneously. All three are critical to career advancement. (Fundamental Concept)
- Try to give each member of a guild a chance to shine, to do something special not just for themselves, but something that will benefit the entire guild.
- Some extrinsic motivation is fine, but dependence on awards and badges alone is problematic.
- Intrinsic motivation is personal and human and as such far more potent than extrinsic motivation. (Fundamental Concept)

CASE STUDY 2

Blend English Institute



Evan McKinney.

English as a Second Language Teacher

Blend English Institute

Seoul, South Korea

Introduction

I am Evan McKinney (See Figure 4.3), an ESL preschool and kindergarten teacher based in South Korea. In 2017 I taught a class of kindergarten students (ages 4–5) that had difficulty learning the content my school used. This led to a highly noticeable decrease in their interest in learning what we had to offer. I already had plans to develop a grand scale phonics game when I had an epiphany: I needed a way to motivate my students in all classes, not just phonics. I decided that the oft used (and oft dreaded) sticker chart would be my solution and I began researching why they frequently do not work and what aspects made them so attractive to teachers, parents, and students. Then it all clicked into place for me. I began designing sticker charts that mitigated the negatives that research had found.

Core Philosophy

Since I teach kindergarten, I need to keep any games and activities at a simple level so that the students can quickly understand the rules and complete the tasks. My sticker charts utilize characters from a franchise you may have heard of: Pokemon. The charts quickly


expanded into a full system of tiered rewards for the students. These rewards would provide students with numerous incentives to try harder in class. The variety of rewards is designed to keep students engaged and guessing at what comes next.


Rewards


Each chart has fifty numbered boxes. Every six stickers, or level-ups, provides a reward.

Level 6: Learn a weak attack	Level 12: Learn the block attack
Level 18: Earn an evolution sticker	Level 24: Learn a medium attack
Level 30: Learn a weak attack	Level 36: Earn an evolution sticker
Level 42: Learn a medium attack	Level 48: Learn a strong attack

SQUIRTLE










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SQUIRTLE



WARTORTLE

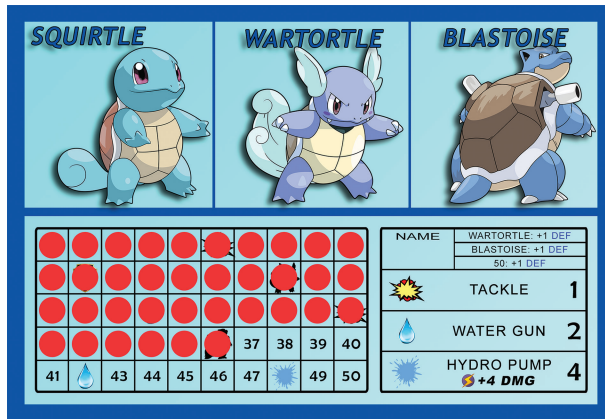




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41		43	44	45	46	47		49	50															

Image of a blank chart, chart with one evolution, and a completed chart with two evolutions.

(Continued)



(CONTINUED) Image of a blank chart, chart with one evolution, and a completed chart with two evolutions.

Learning attacks are a small, intangible reward that provides small milestones on a regular basis. The evolution stickers are placed onto the chart and provide a significant visual change. At level 50 the chart is complete and the student gains the ultimate reward: a battle with a gym leader. The students use their completed chart in a dice game with the teacher, who acts as a gym leader (Pokémon's equivalent of a boss battle). The dice game teaches basic arithmetic in an RPG battle context and the students receive a hidden reward upon winning: a badge sticker for their "Collection Book." This book visualizes the progress the student has made throughout the year, and reminds the teacher which gym leader or legendary Pokémon the student battles the next time they complete a chart. It also doubles as yet another reward for the student. Finally, although level-up stickers appear no different than stickers on an average sticker chart, they serve as a thematic strengthening of the student's Pokémon as well as a visual guide of when they will receive their next reward.

Procedure

At the beginning of the school year each student receives a random Pokémon from a set of fifteen. As in the official Pokémon games, they may trade to get the one they want. During this first day, I take steps to ensure each student levels up so they can begin to immerse themselves in the theme of training their own Pokémon and understand the only condition for leveling up: speaking English. Each time a student says something new or notable in English they level up. For students with lower English ability, this could be as simple as using a key word from a lesson, but for students with more experience with the language, speaking in a full sentence or telling a whole story levels up their Pokémon. Other less common conditions are talking to oneself in English or striking up a conversation with a classmate in English.

It is important to note that I never level up a student's Pokémon if they say something that is correct or behave well. This is strictly an academic effort-based system. There was a time when I leveled up a student during a scolding since they explained themselves in English. You can picture the confusion on the child's face, I'm sure.

Results

As of this case history's writing I have used the system in three classes of students: 6 months, one school year, and one school year. There was an immediate increase in the amount of English spoken by most students. Active students became very talkative and tried hard to speak more so they would level up multiple times in a day. Students who were quiet remained quiet, but when they were called on the length and clarity of their responses were greatly increased. Some students who formerly put little effort into speaking English became living talk radios. These results increased any time a student was about to receive an evolution sticker or finish a chart. In the third class my quietest student became the most talkative student on the first day. This was a shock, to say the least. This is a strong demonstration of the intrinsic value of the system: as a student becomes more immersed, the more their imaginations are activated and they feel like they are training their own Pokemon. The only time a student brings anything outside of the classroom is at the end of the school year when they take all of their charts and their Collection Book home.

Positives

As mentioned, the results were noticeable from the first day. The nature of the system creates a snowball effect as a student completes more charts. They understand that new gym leaders will be fought, new Pokémon will be encountered, and new legendary Pokémon can be caught. They also recognized that battles became more and more difficult. For students that leveled up faster than others, this created tension and maintained their excitement, since the next battle was always a mystery. The cleverest students would see their next milestone on their chart and would immediately turn to me and tell a story, essentially gaming the system. I acknowledge these instances since language is a skill. Regardless of their intentions, all of their practice will make speaking English easier and more natural by the end of the school year.

Negatives

Like with any system, not every student will be engaged. In two of the classes there was one student who simply did not show any interest in the progression on the charts. Predictably, those students made the least amount of progress by the end of the school year. This will likely be the case for any student who is uninterested in Pokemon, uninterested in English, or is not stimulated by the feeling of playing a game. I employed other methods for my uninterested students. They continued to use the charts so that the class remained streamlined.

Other Classes

In the 2018–2019 school year, the school I worked for expanded the use of the system to other classrooms to be used by other teachers. I trained the teachers in my method. The end result was similar to my own classes: students became more engaged with the content and tried harder, knowing that there were various rewards waiting for them. Some teachers adjusted the implementation of the system to their own styles while maintaining positive results.

Other Thoughts

Out of the eight classes that used the system, two of them had students that were already highly motivated and were learning advanced material. My implementation was certainly exciting for the students, but they did not reap the same benefits as the other classes since they were already excited by the very concept of school, and sometimes even asked for extra homework (can you believe they were 5 and 6 years old?). In one of the other classes, some of the students became so adept at the dice battles that the teacher occasionally lets them role-play as gym leaders when he or she was busy. This enhanced the experience for some students.

Year 4 and the Future

As the third school year came to a close, I began a significant overhaul of the system. I decided to include a tiered item system, several new game designs that interact with the charts and items on an academic basis, a simplified dice battle game, and a greatly enhanced sticker chart that features original character designs. About 1 month into the school year the first four characters were completed.



Image of a new blank chart.

In this overhauled setup, all of the level-up rewards from the Pokémon charts have been replaced by an arrow that represents a stat increase. Stat increases are shown by the circles in the upper right corner. There are ten spaces for stat increases but only eight opportunities to fill them out. Additionally, the evolution boxes from the Pokémon version have been replaced by a single box reserved for the character's signature move, of which there are two per character. The stat circles and signature moves are integrated into the dice game, meaning that two students may have different builds of the same character. This prompted debates among students as to which build is stronger.



Image of two character builds.

As of this writing my school is halfway through the 2019 school year, and I have found that my 4- and 5-year-olds are highly engaged with charts and characters. They remain excited about every level up and look forward to battles and other opportunities to interact with the characters. Additionally, this is the first school year where elementary students are using the charts. As these classes run on a much tighter time frame, all games are omitted and the students only focus on leveling up. The students are engaged to the point that they frequently race to raise their hands first to give fully thought-out answers in complete English sentences.

This school year I put all my chips on the students liking characters with absolutely no context or background. Thankfully, this was a success. For the fifth school year I intend to have all twelve or so characters completed, including lore to help students engage quicker. If all goes right, the system will be mostly complete and a great fit into any kindergarten or early elementary classroom with students who need a boost in engagement.

REFERENCES

- Bartle, R. (2003). *Designing Virtual Worlds*. San Francisco: New Riders (Pearson Publishing).
- Egenfeldt-Nielsen, S., Smith, T. H., and Tosca, S. P. (2008). *Understanding Video Games: The Essential Introduction*. New York: Routledge (Taylor & Francis).
- Wu, M. (2014). Intrinsic vs. Extrinsic Rewards (and Their Differences from Motivations). *Khoros Atlas*.

RPI Introduction to Game Design

INTRODUCTION TO GAME DESIGN was a first year, first semester course taught in the fall of 2010. Whereas my game design classes at Indiana University were predominantly upper class, with a smattering of second year students, at Rensselaer Polytechnic Institute (RPI), almost the entire class were first year students. There were other differences as well.

In the description of my Theory and Practice of Game Design syllabus, I stated that the class was meant to cover both “game studies theory and video game design techniques.” And we did. However, it was an uneasy mashup. The choice to combine the two was based on several factors.

I had been designing and writing video games for 15 years, yet I had never studied them formally. I learned first by playing them and then by making them. I was aware there was a growing body of research into many aspects of video games that was worth exploring.

THEORY AND DESIGN

I wanted to bring myself up to speed on the field of game studies that had been growing so rapidly over the previous two decades. I wanted to see through the eyes of those who studied games, rather than those who made them. By committing to teaching game studies, I gave myself a pretty good reason to learn something about them.

A second reason was far more immediate and practical. Instructors qualified to teach anything about video games were thin on the ground at Indiana University in the first decade of this new century. Apart from a few hardy pioneers, university-wide there was

mild curiosity, but more overt skepticism about the need for video game classes. To many, they felt inconsequential, best left to trade schools, and not worthy of serious study. This was in large part due to the ideological struggle between professors who felt their mission was pure research, regardless of practical application, and those who thought teaching students the skills necessary to obtain jobs building things might be a valid pursuit as well. It is still a tug of war playing out in universities all over the country today.

Whatever the reason, we had far more students clamoring to learn about video games than we had instructors to teach them. It was necessary to take material that could be covered more reasonably in two courses and combine it into one.

At Rensselaer, with a game program already in place, all I had to teach was one side of the coin. Practical knowledge about how to make video games would be enough for Introduction to Game Design.

2010 FALL SYLLABUS

As you can see in the syllabus, the description of Introduction to Game Design reflects the narrower focus of the course (Figure 5.1): “game design and development.”

Rensselaer Polytechnic Institute
Games and Simulation Arts and Sciences

67957: Introduction to Game Design

Section COGS-2520-03
Fall 2010
Days and Times TF 12-1:50pm
Room 2510 Sage Laboratory

Instructor: Lee Sheldon
Office: 4403 Sage Laboratory
Phone: 276-8264
Office Hours: TF 11-12
Email: sheldec2@rpi.edu

Prerequisites: None

Description

From the earliest games played with sticks and pebbles through today’s virtual worlds and ARGs, students will be exposed to video game design and development, and will create concept documents for games of their own.

Format

This class is designed as a multiplayer game.

Class time will be divided between fighting monsters (Quizzes, Exams etc.), completing quests (Presentations of Games, Research etc.) and crafting (Personal Game Premises, Game Analysis Papers, Video Game Concept Document etc.).

FIGURE 5.1 Fall 2010 syllabus.

(Continued)

At the beginning of the semester everyone in the class will choose and name their avatars. The first task is to craft the premise of a game you would like to design. This may be a board game, video game (AAA, casual etc.), massively multiplayer game, alternate reality game, or...? Guilds to craft these games will be chosen, balanced as closely as possible by 1337 skillz and interests. Guilds will choose their names, and group in their starting zones. Guild membership will be determined by final class size.

Each guild will be composed of one member from each of the following character classes:

Mage (Designer)
 Ranger (Writer)
 Warrior (Programmer)
 Healer (Artist)
 Necromancer (Producer)

It is not compulsory to be 1337 in any character class. For example not every guild may have a strong artist. Since the final assignment is a concept document, rather than a video game, buffs such as Internet Graphics may raise the player to the level necessary to succeed.

Grading Procedure

You will begin on the first day of class as a Level One avatar. Level Sixteen is the highest level you can achieve (**IN DEVELOPMENT**):

Level	XP*	Letter Grade
Level Sixteen	1860	A+
Level Fifteen	1800	A
Level Fourteen	1740	A-
Level Thirteen	1660	B+
Level Twelve	1600	B
Level Eleven	1540	B-
Level Ten	1460	C+
Level Nine	1400	C
Level Eight	1340	C-
Level Seven	1260	D+
Level Six	1200	D
Level Five	600	
Level Four	300	
Level Three	150	
Level Two	75	
Level One	0	F

*Your level will be determined by experience points (XP) on a 2000 XP scale. You gain XP by defeating mobs, completing quests and crafting.

- Solo: Craft your own game proposal. (Written, 1 paragraph to 1 page, 50 pts.)
- Solo: Present your game proposal to the class. (25 pts.)
- Solo: Sell your game proposal to the class. (**Extra credit**. 25 pts.)
- Raid: Guild reading presentation (75 base pts. each person, 1 of these per guild)
- Pick-Up Group: 2-Player reading presentation (150 base pts. each person, approx. 1 of 11 available, cannot team with fellow guild member) **OR**
- Solo: 1-Player reading presentation (150 base pts. but easier than above, 1 of 2 available)
- Developing clever strategies to defeat presentation mobs can increase XP gained by up to 100 additional pts. (See **Raid Strategies** Below)

78 ■ The Multiplayer Classroom

- Guild: Exploration of new zones. (50 pts. total, including final Guild vs. Guild PvP)
- Solo: Craft short report on *Senet* (Written, 3 pages, 75 pts.)
- Solo: Craft short analysis on board game of your choice (Written, 3 pages, 100 pts.)
- Solo: Craft analysis on video game of your choice (Written, 3 pages, 125 pts.)
- Solo: Defeat Five Random Mobs (5 reading quizzes, 250 pts. total)
- Guild: Midterm Prep Guild vs. Guild PvP (50 pts.)
- Solo: Defeat Level Boss (Midterm Exam, 200 pts.)
- Guild: Paper Prototype (50 pts. each)
- Guild: Defeat Final Bosses (150 pts. See **Final Bosses** below)
- Guild: Craft Final Project: Game Concept (Written, 30 pages, 250 pts.)
- Solo: Class attendance (280 XP total, 10 pts. per day of attendance)
- **Extra credit** for early completion of final concept document (10 pts. on Monday)
- Solo Farming: Glossary (**Extra credit**. 1 pt. per term added. 25 pt. cap per player. First come first served. Each mob only spawns once.)
- Group: Peer Review Secret Ballot (**Extra credit**. 0-100 possible XP as follows:
 - Guild Leader 100 pts.
 - Raid Leader 75 pts.
 - Solid Guild Crafter 50 pts.
 - Needs Rez 25 pts.
 - Leroy Jenkins 0 pts.

Grading is rigorous. Spelling, grammar and punctuation must be proofed. Total XP will suffer otherwise.

Expansion Packs

This game is currently in closed beta, so a number of changes may occur throughout the semester. The development team is working on the following for future expansion packs. For example:

- LMS class website. The site will mature and expand throughout the semester.
- Leaderboards will be added and published online. However, we must juggle hardcore competition with privacy, so in a university setting this is harder than it sounds.
- You will notice that as currently established the XP system is atypical with an equal number of XP required to reach each level. This results in the opposite of a normal MMO leveling curve: leveling up in the beginning is currently actually harder than at the end of the semester.

Raid Strategies

As noted above clever raid strategies can increase the amount of XP awarded for defeating presentation mobs. As in any MMO successful raids are built upon the attempts of others. Your basic slideshow presentation where you read off the bullet points like some tired professor will only qualify for the base number of XP. Other methods such as videos, contests, performances and of course games are encouraged.

Final Bosses

Late in the game guilds will be faced with two or more Final Bosses, game industry professionals, each harder than a Lich King. They will be required to defeat these bosses by selling them on their game concepts. Bosses this semester are Jesse Schell and Chris Foster. You can find their stats online.

Attendance and Conduct

Attendance will be taken, and will count toward the final grade (see above). You are expected to attend every class. Assignments are due at the *beginning* of every class. Late assignments will fail to achieve the highest amount of XP for that assignment.

Plagiarism, submitting assignments written by others, and other forms of academic misconduct are governed by university policy. In a word: DON'T.

Classroom conduct: Participate with civility and an abiding appreciation for the power of words. Respect others, even those who hold opposing views.

Required Text

The Art of Game Design. Jesse Schell.

Suggested Reading

Homo Ludens. Johan Huizinga.

Flow: The Psychology of Optimal Experience. Mihaly Csikszentmihalyi.

A Theory of Fun. Raph Koster.

Game Design (Second Edition). Bob Bates.

Game Design: A Practical Approach. Paul Schuytema.

Rules of Play. Zimmerman & Salen.

Understanding Video Games. Egenfeldt-Nielsen et al.

Character Development & Storytelling for Games (Second Edition). Lee Sheldon.

FIGURE 5.1 (CONTINUED) Fall 2010 syllabus.

A new addition to the Format section was an attempt to map more gamer references to real-world elements. It had always felt artificial to create avatars and guilds, and then call the roles players would take on by real-world professions. So, in this iteration, I settled on fantasy role-playing classes instead.

In the book by Richard Bartle (2003) I taught at IU, *Designing Virtual Worlds*, he introduces the four major player personality types (Figure 5.2).

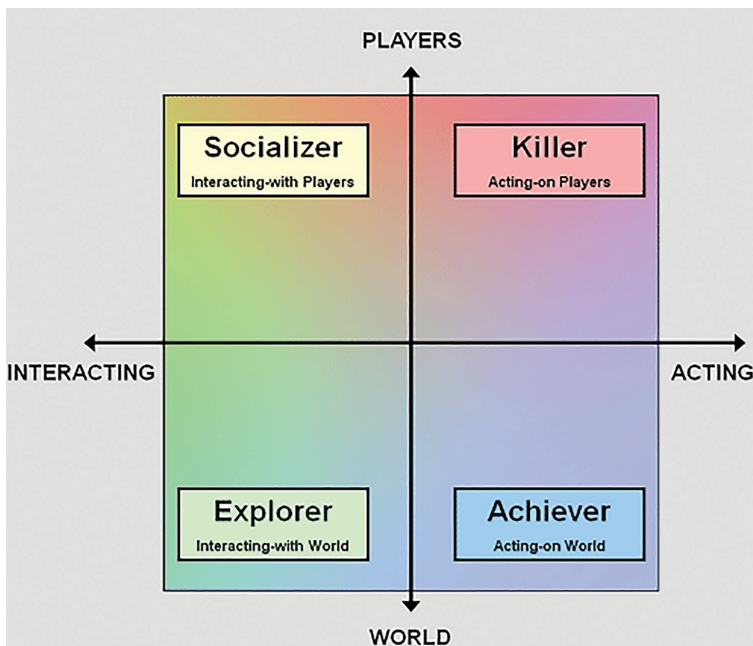


FIGURE 5.2 Richard Bartle's four player personality types.

Simply put, they are the following:

- **Killers.** These players would rather fight than talk. They prefer PvP to PvE. This is not, as some suggest, a negative category. It is one of the primary homes of those who play for the competition more than the killing
- **Achievers.** Achievers play for extrinsic rewards, such as levels and loot. They can be equally strong competitors
- **Socializers.** Their enjoyment springs from interacting with other players. The game matters less than the social experience
- **Explorers.** Players who play to discover new things; to go where others have not yet gone; and to lead the way for others through maps or hints

Few players of MMOs are entirely one type. However, we can often be identified primarily by one type. I am an explorer. Writers are explorers, leading the way, finding new paths. Writers also became rangers because I am a ranger or their equivalent (hunter, archer) in almost every RPG I play, and I wrote this book.

Richard's personality types are good for more than me justifying my role-playing class for writers. We will be going into game design in greater depth starting in Quest 12.

Programmers became Warriors. They are usually in the thick of battle, and if they fail, the battle is often lost. Without programmers, there is no video game.

Artists became Healers. As Congreve wrote in his play, *The Mourning Bride*: "Music hath charms to soothe the savage breast." (Yes, it's "breast" not "beast.") Art has long been known to heal by changing attitude, and therefore physiology, by reducing stress and fostering relaxation.

No, these role-playing classes aren't perfect. I was still struggling to make the student's avatar relevant in a game design class, not just consistent with the world of the game I was designing. As we will see in Quest 6, in that class, the solution is far simpler.

Your Classroom

Your class is divided into these four types as surely as any MMO. When you design your game, include equal gameplay for each of them just as you create opportunities for each of your students to succeed for the benefit of others.

Under the Format heading of the syllabus I also went into more detail about how students, even first year students, could fulfill the various roles they would be asked to play in the design of their guild's game. For this, I introduced another game concept: buffs.

BUFF

A buff is an enhancement to a player's power, either permanent or temporary. A permanent enhancement is bestowed by the game mechanics, such as leveling. A temporary enhancement is caused by something within the world of the game, such as a spell.

In this case, I wanted to reassure students that they need not be experts in the roles in which they ended up. It would be awkward to force someone without programming experience to be responsible for making programming choices even if they weren't required to code. I pointed out to them that if they weren't artists, they could buff themselves by researching what their role required or relying on examples and images they didn't produce themselves. This was sufficient to soothe a number of savage breasts.

The next big change was the table under Grading Procedure. I wanted to try and tackle the imbalance in the leveling I described earlier. I was careful to add the words *In Development* because this didn't feel right either. I added additional lower levels, easier to reach with less XP. However, the glaring error was that with the first five levels, the only thing achieved was the level itself. It was little consolation to someone who was gaining XP and levels relatively fast, only to see online where their grades were tracked that they officially still had an F.

My last class session every semester is a Postmortem, a term the game development community has borrowed from a medical examiner picking apart a corpse to determine how the victim died. In the industry, it is the game that is picked apart, features discussed, design decisions studied, and personnel issues scrutinized.

My classes are the victims that the students get to pick apart on the last day. We have an open dialogue about what they felt worked and what went wrong. And more often than not, their observations help me make my next class better. Nothing was dissected more thoroughly in the first three classes' Postmortems than the leveling system. Thanks to the students, I think in the fourth iteration we'll look at in Quest 6, we were finally getting close.

Despite the lack of interest in glossary building the previous spring, I again trotted this out as a worthwhile exercise to gain some extra XP.

BRAND NEW PARTS TO THE SYLLABUS

Following the Grading Procedure section, I added three new parts to the syllabus. The first of these was Expansion Packs.

Here I explained the two major challenges I had identified. One was the leveling system. The second

EXPANSION PACK

Developed after the initial release of a game, expansion packs added new material, including additional story, new areas to explore, new items, and sometimes more levels. Today they are more often known as DLC or Downloadable Content.

was Rensselaer's *Learning Management System (LMS)*. This was the promise that I, the game designer and developer, would continue to work on these items in the hopes of correcting them as the semester wore on. I failed with the leveling system.

Using *LMS* was a mixed bag. It is an adaptation of the *Blackboard Learning System*, a course administration tool used by a number of universities. At Indiana University, we had a similar system called *Oncourse*, that, in turn, was an adaptation of a competing system called *Sakai*. At Worcester Polytechnic Institute, where I am now, we had *Blackboard*, but have now moved to *Canvas*. These well-meaning tools all feel cobbled together by any number of programmers who are not educators and educators who are not programmers. They can be in almost the same breath helpful and time-saving and frustrating and time-wasting. They are fine for announcements, tracking assignments and grades, etc. I use them for general class management chores like that. They are not so fine if you ask them to do things they aren't set up to do. None are as game-friendly as *Rezzly* or *Classcraft*.

Luckily, at Rensselaer I had the help of an *LMS* guru by the name of Marie-Pierre Huguét, our instructional designer, and her team of talented students. Marie-Pierre had introduced the *LMS* to my orientation class before my first semester started. It seemed more flexible than *Oncourse*, particularly in its ability to alter the graphical look-and-feel of the course online. *Oncourse* looked like a course administration tool. In *LMS*, we created a map of a fantasy role-playing village for the class with seven icons representing buildings and other features of the village (Figure 5.3).

Each of the seven icons was meant to be a link to course content. Rolling over the icon displayed a tooltip naming the icon. Clockwise from the upper left-hand corner, they are as follows:

- **Town Crier.** Clicking on the Town Crier would take students to the *LMS* Orientation website. Here they could learn where to find the syllabus and calendar; how to check their status in the class; where to upload assignments; and so on.
- **Post Office.** The Post Office would link to a page where they could find class assignments.
- **Library.** Here students could browse through the syllabus, calendar, and click on links to outside content such as other RPI resources and Internet articles pertaining to game design issues.
- **Inn.** This was planned to be a forum for students to contact one another and discuss class issues.
- **Guild Hall.** All six guilds had rooms here where they would communicate privately; find photographs of themselves and their avatar names; and later in the semester a brand new surprise courtesy of one of our Final Bosses.

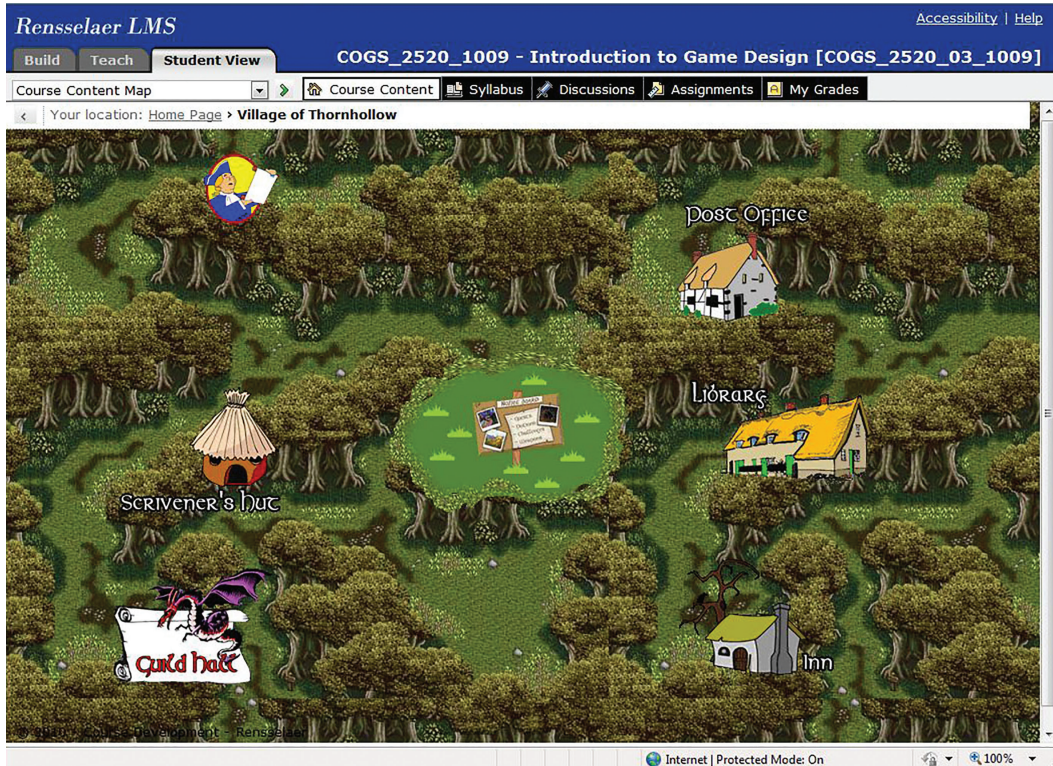


FIGURE 5.3 LMS village map of the Introduction to Game Design Multiplayer Classroom.

- **Scrivener's Hut.** This was a link to a wiki where students could upload glossary items.
- **Notice Board.** Announcements of important class events would be posted here.

In addition to these features for students, the *LMS* also allowed for the recording and posting of grades, a drop box for assignments, and other tools for building the website and administering the class. We were stretching the *LMS* to its limits. We'll see shortly how all of this worked out.

The next new section in the syllabus was called *Raid Strategies*. Here for the first time I laid out in black-and-white what I expected from the presentations, a rubric that had been only verbal in the previous classes.

Finally, there was a section called *Final Bosses*. With this class, industry guests became a more formal part of the class. Guild presentations to guests pretending to be publishers would now be graded. As you can see in the syllabus, the guild pitches of their concepts

TABLE 5.1 Terminology Map

Designer	Mage
Writer	Ranger
Programmer	Warrior
Artist	Healer
Student aid	Buff
Ongoing class-related issues being addressed	Expansion packs
Hints on improving presentations	Raid strategies
Industry guests	Final Bosses

were worth a good chunk of XP. While points were based on the first draft of concept documents, and not on students' ability to pitch their ideas, guest comments were directed at everything. Our two Final Bosses were Jesse Schell, professor at Carnegie-Mellon's Entertainment Technology Center and CEO of Schell Games (and, as you will remember, the guy that gave the talk that led to this book), and Chris Foster, then design director at Harmonix and lead designer for *Beatles: Rock Band*. This was a great success, and a Q&A panel with our guests later that afternoon was standing room only.

So, while maintaining the format of previous multiplayer classrooms, I explored a number of new ideas for Introduction to Game Design. The real-world terms in this chapter that map directly to game terms are in Table 5.1.

CLASS

Coincidentally, RPI was founded in 1824, the same year as Indiana University. RPI already had an interdisciplinary GSAS program when I arrived. While all of my students are of the gamer generation, there were major differences between IU and RPI that affected the multiplayer classroom when I moved from one institution to the other.

- **Class size shrank from between thirty and forty students to twenty-five.** The guild size shrank from six to seven members to four. Presentation quests required more material to be covered by each player.
- **Class time grew from 1 hour 15 minutes to 1 hour 50 minutes, and it was now worth four credits instead of three.** I was afraid I wouldn't have enough material to fill the additional 35 minutes! For the first couple of class periods, this proved correct. But while at IU, I often had to push material from one class to the next when quest presentations went long. I discovered that the extra 35 minutes eliminated that need, and the class stayed much closer to my original calendar.

- **There is another result of longer classes for four credits.** It means there were fewer classes available to students. Rensselaer required a certain number of classes for a student's major. If they chose to pursue a dual major, the corresponding courses were required. And there was yet another group of institute-required courses in both math and science and humanities and social sciences. This restricted the number of classes that students could take in their chosen major, and I believe restricted our ability to give them all the knowledge that would prepare them for their careers in the video game industry.

This is a balancing act many schools face, and it goes back to my comments earlier in this quest concerning the tug of war in the academy between those who research and those who make. A curriculum becomes a compromise between the two that pleases no one completely.

- **Students at IU entered with a wide range of interests and goals.** Some were interested in careers in the game industry; others were casually interested in games; and still others knew little about games but wanted to learn more. Coursework had to reflect that wide range of interests.
- **Students in GSAS arrived at RPI already focused on careers in video games, whether commercial or applied.** In the entire “Introduction to Game Design” class, all but one or two freshmen knew who Leeroy Jenkins was and debated whether the video of his exploits was real or staged.
- **Some students at IU could draw from a wide range of skills necessary to the production of video games.** Others had none. This meant I could not ask each guild in a class of third year students—no matter how balanced I tried to make them—to build a playable portion of a game at the end of the semester.
- **All students at RPI entered the GSAS program with high math and science scores, as well as skills such as programming and art and writing already developing.** These students were on a much more equal level of knowledge even in their first year on campus. This, in turn, meant that guild balancing was simpler, and I did not need to tailor class content to the same wide range of abilities as I had at IU.
- **IU has a large, very generalized population in terms of educational goals. RPI is highly focused on science and technology.** As a result, RPI has a disproportionately large number of students with autistic spectrum disorder. These students are often brilliant, but each to a lesser or greater degree struggles with social and communication issues. While there might still be incidents of anger or frustration in the class, particularly within guilds, GSAS spectrum kids were

already gamers. So, while accommodations to give them more time to complete tests were required, they actually performed exceptionally well in the multiplayer classroom.

One other issue was, and still is, my infamous inability to explain assignments clearly. I get this complaint a lot on student evaluations. Yes, I write descriptions of all assignments in more detail than what you see in the syllabi in this book. But the more I try to explain an assignment verbally the more likely I am to wander off into the underbrush of conflicting ideas in my head and lose my way. I have been known to react to a student's question concerning a rubric by changing my mind and agreeing to something entirely new. This I realize is not only tough on spectrum students but also extremely confusing and annoying to all students. To all of my students past, present, and future: I'll try to do better!

- **Marie-Pierre Huguet and her team helped on multiple levels.** A final difference between this class and those I had taught at IU was the addition of Marie-Pierre Huguet and her team, who not only helped with the LMS but also documented the class with video. The stills in this quest have been grabbed from Flip video, shot by several people, including yours truly. The quality reflects the videographer holding the camera at the time. Marie-Pierre, an instructional designer, also wrote her observations of the class in the section called *Intermezzo* that follows this quest.

Other differences will become apparent as we study how the Introduction to Game Design class played out.

First, take a look at the new game board. Here we have an entirely different classroom arrangement: square tables each designed to accommodate four students, and each anchored in place by cables from the floor leading to electrical outlets on the tables for laptops (Figure 5.4). Every incoming freshman is required to have a laptop.

This room shared the advantage that the Ballantine classroom enjoyed: it was easy to divide the guilds. Each table was a clearly identifiable zone. However, the flexibility ended there since the tables could not be moved more than a few inches from the power cables.

Since twenty-five students had enrolled in the class, it made sense to divide them into five equal-sized guilds of five players each. The main issue here was that the tables were only designed for four students each. Seating five at a table was a bit cramped, but we made do.

Again, guilds were moved from zone to zone. I used a simple chart to track guild movement throughout the semester. A more formalized procedure was adopted for players answering questions about the people their zones were named after. This culminated in December with another PvP event where guilds were required to defend or reject including these designers on the game map. They did not know which zone they would be seated in



FIGURE 5.4 Sage Laboratory room 2510.

on the day of the competition, so they were required to research all five. All guilds chose to defend the inclusion of the zone’s namesake. The debate started slowly but picked up rapidly with members of different guilds challenging each other’s conclusions. After the defenses, everyone voted on which guild had done the best job.

We began the class as before with everyone making up their avatar names. Again, since there was no central theme or narrative, avatar names were all over the place. This would change dramatically in the Designing Interactive Characters class that we’ll visit next. Students selected five games. The guilds were created as before, juggling player choices with balanced skill sets.

I confess to a continuing annoyance about the limited group of genres AAA titles tend to fall into: Survival Horror, Post-Apocalyptic, Post-Tolkien Fantasy, and Science Fiction. So, I was not surprised when there were many pitches in all of my game classes for games within the few genres mentioned above. However, the highest vote getters in the class managed to reflect wider horizons. We did have two Post-Apocalyptic games in this mix, but each with some interesting elements. We also had a great Halloween game; a parody of first-person shooters where you could play a butt-kicking Abe Lincoln; and an art-based game where your avatar defeated evil beavers by painting in “all the colors of the rainbow.” All in all, an interesting group of games!

I noticed something almost immediately that was the same at both IU and RPI. Class attendance was outstanding. Out of 700 possible absences (twenty-five students \times twenty-eight class meetings), there were only ten absences. In the winter. In upstate New York. In neck-deep snow.

I believe there are two reasons for this. In addition to the simple flip from telling them they would be graded down, if they missed a class, to telling them they would get XP just for attending, there was the very nature of the multiplayer classroom. Students do not know what to expect, either from the instructor or their peers. They had a great time learning, as the photographs in this quest will confirm.

Your Classroom

Usually students like everything that is expected of them in the class to be spelled out. If we stray from what we promise, there can be repercussions. However, treating some game elements as mysteries works quite well in keeping student interest. The exact nature of a midterm prep for example or a surprise party to celebrate a holiday can be withheld, as long as the students are aware that it is meant to be a surprise and not just a sudden whim of their teacher.

Finally, with this class presentations came into their own. During the Postmortem last spring, my Game Design students had advocated I not only suggest avoidance of bulleted PowerPoints but also give some specific examples of successful presentations in my classes. I mentioned the *So You Want to Be a Millionaire?* game, the scripted performance, and more. This semester's class took those examples to heart.

Quest presentations featured lots of audience participation; several games; mods of several video games from *Super Mario* to *Subversion*; examples within the wonderful award-winning *Minecraft*; an expert demonstration of close-up magic; an original epic poem; and a website that could supposedly identify a real or fictional person from a few scant clues (it failed to identify the writer of this book you are reading, however...)

MOD

Mod is short for modification. It means an experience that is not stand-alone software but built from the assets and programming of another game. Today many commercial games include the ability to easily create mods.

MINECRAFT

Minecraft is a highly entertaining “sandbox fantasy adventure game” set in a world made of different kinds of 1-m blocks that players can manipulate in all sorts of interesting ways. It has probably been used to teach a variety of subjects more times than any other commercial game.

The best part of these presentations was not their considerable ingenuity, but their clarity. The presenters did not lose touch with the fact that they were sharing knowledge. And thanks to the entertainment, not in spite of it, the lessons were learned (Figures 5.5–5.8).

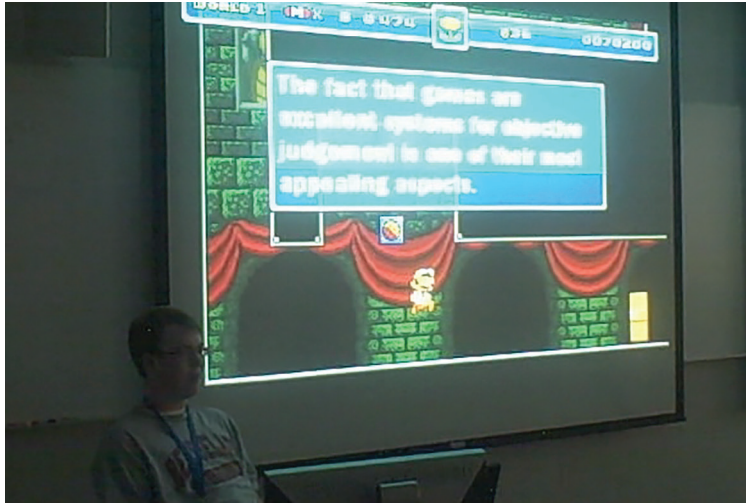


FIGURE 5.5 Edrobot enlists Mario's aid to teach game design.



FIGURE 5.6 *Minecraft* is the setting for Bloodbath & Beyond's quest presentation.



FIGURE 5.7 Favian uses card tricks to illustrate his quest presentation.

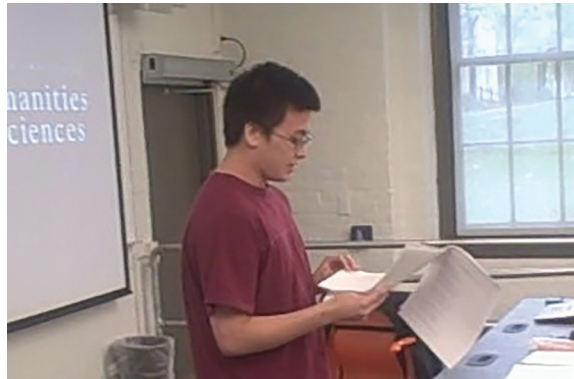


FIGURE 5.8 How Original begins his presentation: “To not bore people with traditional PowerPoints, let us test the strength of words.” He then reads the epic poem he has written.

For random mob attacks (the reading quizzes), I reverted to solo written exams, but added a twist. This idea was inspired by a comment from one of the contributors on the Gaming the Classroom forum, Aaron Pavao Aaron submitted case studies for both the first edition of *The Multiplayer Classroom* and the current edition as well. Here he describes a way that players could contribute to their guild’s success:

[I] implemented a “teamwork bonus” system wherein if all of the members of a team do well on an individual test, they get an XP bonus. This leverages social pressure to encourage students to encourage one another to prepare.

This is a great way to use social pressure for learning. My idea of allowing guilds to answer one question for all to succeed in the first two multiplayer classrooms had two drawbacks. As mentioned earlier, it encouraged laziness in a guild. If only one member studied, in

the end those who didn't bother would suffer either on the midterm, or in their ability to contribute to the concept document. Second, it placed a lot of weight on a single question. If the entire guild knew the answers to all of the questions on the quiz except the one the random roll of a die chose for them, they would fail to get *any* points on that quiz.

For this new class I changed the rule. While they were individually taking the quiz and not sharing answers, if *any* guild member got the bonus question correct, all got credit for it.

An obvious objection might be that the kid with the glasses would answer the question and the rest of the guild would just sit around and accept the credit. That didn't happen. Here, I realized, was a formidable intrinsic reward: doing something to help guildmates and their reaction to that shared success. The high fives and hugs the student who answered the question correctly received encouraged, no *compelled*, the others in the guild to study harder in the hope that they would get a similar reward. The power of this cannot be overstated. It was like kicking a winning goal in soccer. It was so successful I was to add more questions to this shared victory in later classes. Another example from the midterm prep illustrates an intrinsic reward in action: the congratulations from your guild for a job well done (Figure 5.9).



FIGURE 5.9 Winning one for the guild!

I had learned the previous semester how important it could be to engage everyone in preparing to attack the level boss (midterm exam). I kept the guild vs. guild PvP that had worked so well the previous semester at IU but added a physical element.

Differentiating who shouted out a word or zone name first proved difficult, and it caused a great deal of passionate debate. I tested another approach in Introduction to Game Design, introducing the Hat of Knowledge, a baseball cap courtesy of one of my IU colleagues, Ted Castronova's Ludium conferences.

I placed the cap on a table at the front of the class. Each guild selected a representative to line up along the wall. I randomly chose one of sixty questions, of which forty would be on the midterm. Instead of shouting out answers, each of these pullers waited for a signal from their guild and then raced for the hat. The first one to grab it had a few seconds to hear the answer from his guild. The puller would then officially answer it.

Some pullers would take off too soon, grab the hat, and wait in vain for their guild to give them the correct answer (Figure 5.10).

PULLER

In MMOs, a puller is a member of a group or raid who is tasked with getting a mob to chase him to his waiting comrades, usually so it will not aggro other nearby mobs and cause them to attack. This technique is important when a group is able to tackle one mob at a time but could not handle more.



FIGURE 5.10 Sorry, Atlas, looks like your guildies left you twisting in the wind.

As before, the amount of XP the class earned on the midterm was significantly higher than the non-multiplayer classroom midterm preps. Although I'm truly sorry we don't have a shot of RamenNoodles plummeting over the table in his attempt to grab the hat, I'm even happier that the multiplayer classroom avoided sustaining its first injury!

THE PROTOTYPE

An important stage in the development of a game is the prototype. This can be a level, or a quest, or some other portion of the game that demonstrates significant gameplay. Developers blessed with a good budget, a reasonable schedule, technical expertise, and hopefully a stable engine can build a prototype that will look and feel much like the finished game. Publishers usually include this as a milestone in the contract with the developers. Long before the prototype publishers demand, developers often create what is called a *paper prototype*. This prototype may be built with other materials. It may even be digital (Figure 5.11). But its primary purpose is to test gameplay as early in the production cycle as possible.

One day was set aside for students to play each other's prototypes. While guild members moved from table to table, playing each game for a set period of time, one stayed behind at their own game to explain rules and jot down player suggestions. After feedback from their

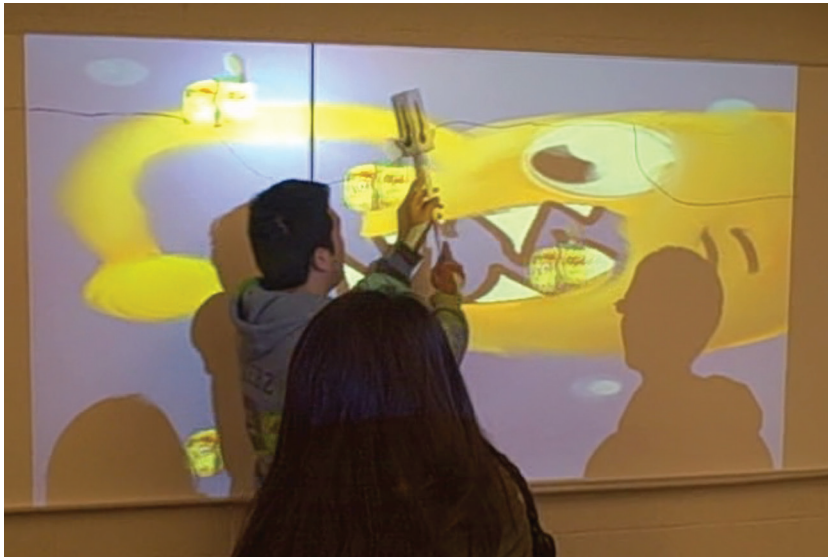


FIGURE 5.11 TBA's prototype of *Brush Paint!* was digital, but with a human player character.

testers both during play, and in a Postmortem session in the next class, guilds polished their game concepts.

Your Classroom

Allow your students to critique one another's work. It is a great learning opportunity for both the student creator and the critic. Students, realizing their own work will be seen by others, are mindful not to be harsh, and most truly enjoy being helpful. Having a student accept an idea from another student is an intrinsic reward for both. "He gave me a good idea!" and "She liked my game!"

The hardest challenge yet was quickly approaching: pitching their games to the Final Bosses (Figures 5.12 and 5.13).

Actually, both of the Final Bosses were tough but fair: grilling guilds on their designs, budgets, assumptions of how the commercial game industry operates, and much more.

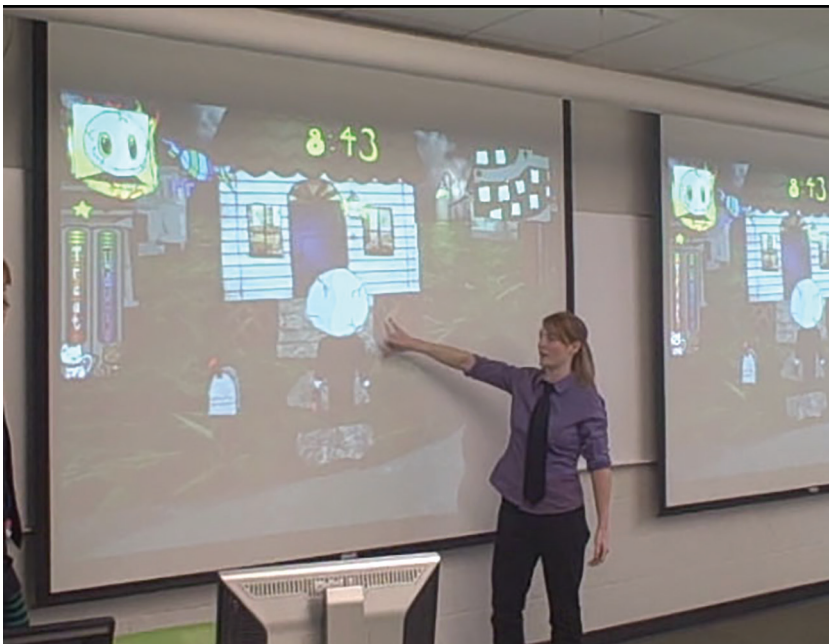


FIGURE 5.12 Neo Arcadia's boss raid.



FIGURE 5.13 Boss Mobs Jesse Schell (foreground) and Chris Foster on the attack!

QUEST 5 WALKTHROUGH

- Keep in mind Richard Bartle's four player types as you design game challenges for your students. It's another way to ensure that every student has a chance to contribute to their guild's success.
- It will be difficult to change much about how your school's standard LMS prefers things. If you feel you need more game-specific class management tools, you'll find *Rezzly* or *Classcraft* mentioned by a couple of authors of the case studies in this book who have used them.
- Knowing that a surprise event is coming in a class can increase student engagement and attendance. (Fundamental Concept)
- Using commercial games in class is perfectly acceptable as long as they are not expected to replace all other learning activities.
- Designate some exam questions as special cases where if a single guild member answers the question, all members get credit. This creates a powerful intrinsic reward. (Fundamental Concept)
- Allowing students to critique each other's work can create the opportunity for powerful intrinsic rewards for both sides of the exchange. (Fundamental Concept)

INTERMEZZO

Before we move on to Quest 6, Designing Interactive Characters, have a look at the next section, an intermezzo from Marie-Pierre Huguet, who led the team that helped create our LMS presence. Marie-Pierre's team videoed the entire semester. She sat in on many class sessions and wrote the observations from her professional point of view as an instructional designer.

Observations from Marie-Pierre Huguet

Beyond the Game

This is the first day of class. I walk into the classroom with a wave of students. It is one of these rooms designed to facilitate cooperative learning. The rows of desks have been replaced by eight square tables. Each table is surrounded by four, randomly arranged, neon green or fluorescent orange plastic chairs. A painful attempt at cheering up the grayness of everything else. The room is equipped with the high-tech paraphernalia of a wired institution: hubs at the center of the table, cutting edge technology at the faculty podium.

After careful selection, I settle in the back of the room and assume my role of an observer. More students trickle in. They must be freshmen. They have the stiff air of their class. Pretending to know what they are doing by furtively getting their cues from those already settled. As they sit down, most open their laptop and start typing away. Those not on a laptop are on a cell phone, iPhone, or droid. They look like any other student on campus. At Rensselaer, regardless of your major, you're an engineer.

There are two doors. The one we all used, opposite the windows, by the teacher's podium. And the one almost hidden at the shadowy end of the class by the whiteboard. This is the one Lee chooses to enter the classroom. He's wearing a T-shirt and Bermuda shorts and is holding a handful of papers. At first, not everyone pays much attention to him. Though older, he could be one of them. Probably a staff member working on a degree of some sort. They're used to that. They type on. Some have struck a whispered conversation with their neighbors. The class is starting soon, and you don't want to seem too rowdy on the first day.

Rather than join one of the groups, however, Lee stops by the long table in front of the classroom and stands there, looking around. A few students look up before dismissing him again. A teaching assistant (TA), maybe? Not worth their attention either. Some are beginning to look concerned. Where's the professor? It's twelve noon. A younger man is accompanying Lee. They readjust their thinking. You can't have two TA's in a class of 25. I see puzzled looks. Aren't professors supposed to wear suits and ties on the first day of class? Carry laptops or some academic looking things?

Slowly the students are beginning to pay attention to Lee. Very superficially at first. He introduces himself and his TA before launching into the syllabus. That's the familiar first day of the semester traditional routine. They've already been through a couple of these.

They expect him to get into the grading stuff, the attendance and conduct policies, the no-late-assignment spiel ... and they start drifting again. Not for long. “You all have an F, says Lee, unless...”

A lot can happen in a nanosecond. And a lot does happen between the moment the students hear “F” and “unless.” In that infinitesimal amount of time, they come together as one against the injustice. I hear a few “what?” “hey!” “not fair,” they are ready to stand for their rights as students, argue this newcomer to the ground. But as Lee continues, barely raising his voice, yet reaching the back of the room, they realize they have entered “the game.” Comprehension sinks in. Excitement rises. They’re already plotting to be the first to get to level 1.

Although multitasking resumes, the flying fingers on the keyboards have shifted purpose. Text a friend to urge him to get into this section of the course. Google “Lee Sheldon” to check on the nonassuming man standing in front of them. Brush up on gaming terminology ... without appearing to be doing so. I catch “raid,” “XP,” “mob,” and “1337 skillz.” Personally, I would have fed the entire syllabus into these search engines. I am an educator, not a gamer.

And as an educator I see beyond the game. This is the ultimate situated learning opportunity where the subject being taught is the vehicle used to teach it. It uses the language that needs to be spoken, the behavior that needs to be learned, and the process that needs to be followed. It has the messiness of life and the rigor of academia.

In this educational environment where the teacher has turned into a Game Master and the students hide behind avatars as they defeat mobs, complete quests, and craft games, the overarching shadow of academe looms forcefully. This remains a “real” course, with “real” learning outcomes, and “real” assessments. It is a critical component of Rensselaer’s “GSAS” program and as such is held at the same high academic standards as all other classes.

From my observer’s perch, I am watching a familiar world. I may not know the lingua franca, get confused by the landscape, puzzle over the characters, but I recognize the driving forces behind it all. Piaget, Vygotsky, and Bruner walk side by side with Miyamoto, Wright, Bartle, Romero, Meir, and Schell.

Piaget is omnipresent in the environment Lee has created. Lee intuitively understands the critical role that experiences play in his students’ learning. He is aware that they construct their own knowledge in response to these experiences. Given an opportunity, students will learn many things on their own without the intervention of peers or instructors. They are intrinsically motivated to learn and do not need a grade, or a “reward” from the instructor to motivate their learning. The true act of learning is, after all, a selfish, self-centric experience. The levels in the game, while measuring the specific accomplishment of predefined, educational tasks, keep the control of reaching that level with the students. As the Game Master, Lee’s role is to facilitate and orchestrate the learning, not to control it.

Though Lee might be hard pressed to discuss the concept of “continuity,” the key sources needed to establish this Piagetian concept are present. For example, the *reading presentations* allow his students to “translate incoming information” into a form they and their peers can understand (assimilation). When they select their avatar and become part of a guild, the students adapt their current knowledge structures in response to new experience (accommodation). And their *raid strategies* allow them to balance assimilation and accommodation to create a stable understanding of the game design (equilibration).

Vygotsky (1978) provides the framework that structures the interactions between Lee and his students. For most of the semester, as the Game Master, Lee is the “more knowledgeable other.” He has designed his learning activities to enable his students to solve problems and perform tasks that would otherwise be hard or impossible for them to carry out. But he also shares that role of a more knowledgeable other with his students and his peers. This Vygotskian framework for learning is driven by the notion of the *zone of proximal development* or *ZPD*. *ZPD* characterizes the area between what the students can accomplish on their own and what they can accomplish, and ultimately master, with the help of a more knowledgeable other. The four critical learning stages of *ZPD* are omnipresent in Lee’s class:

- **Stage 1: Assistance provided by more knowledgeable others.**
 - In Lee’s class, the students are never left alone to struggle with a concept, a task, or an assignment. At any time, they can turn to their guild, to the other guilds, and to the Game Master. And even as they reach their final “level,” as they present their game concept, they receive guidance and feedback from external experts in the field: Jesse Schell and Chris Foster. A reinforcement that, though the “Introduction to Game Design” multiplayer game might seem to be over, the learning that came with it, is not.
- **Stage 2: Assistance by self.**
 - The structure of the course allows the students to take ownership of their learning. The passive attitude so common in our classrooms disappears on the first day of class. “You all have an F, unless ...” somehow is the most powerful trigger for student engagement. This is not about making the grade anymore. It is about getting to the next level, challenging oneself, alone or with others, outsmarting the Game Master. This may be a multiplayer game, but the careful blend and the nature of “solo” tasks allow the students to reap the most XP’s on their own terms.
- **Stage 3: Internalization.**
 - In an introductory course, the assumption is that the students need to acquire the skills, knowledge, and attitude that will facilitate the successful completion

of their course of study. In academia, this often means an overdose of theory anchored in behaviorist mechanics. The role of practice then is to support and reinforce the theory. Learning remains static and limited to the subject at hand. In the multiplayer classroom, the roles are reversed. Practice drives the understanding of theory. As the skills, knowledge, and attitude are acquired, students create their own schemas out of which, ultimately, theory will emerge.

- Internalization allows the students to take a learning opportunity and make it their own. At this stage, they move away from the ZPD and they build their understanding of the “what” and the “why,” and strengthen their knowledge of the “how.” As they experience the various aspects of game design by defeating mobs, completing quests, and crafting, they are exposed to the theory that hides behind each of them. Theory loses its abstraction and perceived staleness to provide the sound and critical structure needed for a strong game design. Theory comes to life as students craft their game. Lee provides learning activities that foster student ownership of their knowledge, and this knowledge becomes meaningful to them.
- **Stage 4: Recursiveness through prior stages.**
 - Though the course progression seems to be linear, perception skewed by the “level” approach of the grading structure, it is not. And in many respects, neither is the students’ progression through the four stages. Once the students have progressed out of the ZPD and have taken ownership of their knowledge, the learning does not stop or become static. Students remember concepts discovered on their own, yet there are still many instances when they need assistance while learning something new. This is facilitated by this stage of “recursiveness through prior stages,” one of the driving forces in Lee’s class.
 - In the syllabus as much as in the classroom, I can see how Lee introduces the students to the basics of game design through direct involvement and reflection, builds on them, before weaving in the complexity that requires mastery of the initial skill and knowledge sets. For example, the students play *Senet*, an assigned game that will enable them to write their first reflection. The feedback from this assignment can then be used when they write a short analysis on the board game they have selected before writing a full analysis on a video game of their choice.
 - With the first instance, the game of *Senet* has been selected for the students, and Lee’s interaction with the groups of players is more overt. He walks around the classroom, guiding and refocusing the students as they play (stage 1). With the

second instance, the students are taking Lee's role, becoming the more knowledgeable others. They have selected the game, and they are responsible for facilitating the activity (stage 2). Finally, the familiarity of playing the game is removed, and the students focus on the skills of writing a game analysis (stage 3). Stage 4 is reached when students start working on the creation of their own game.

Figure 5.14 derived from work by Gallimore and Tharp (1990) provides a visual representation of the process.

Lee's gaming of the syllabus is a form of discovery learning, an inquiry-based, constructivist approach proposed by Jerome Bruner (1966), that thrives on problem-solving situations: the students draw from their own experiences and knowledge to discover facts and relationships. They interact with the world, real or imaginary, by exploring and manipulating objects and situations, wrestling with questions and challenges, and performing tasks and experiments.

Here, the syllabus becomes more than a piece of paper with placatory words stamped onto it. As Bruner (1960) states in *The Process of Education*: "The first object of any act of learning, over and beyond the pleasure it may give, is that it should serve us in the future. Learning should not only take us somewhere; it should allow us later to go further more easily." Bruner argues that, in order to enable the transfer of thinking processes from one context to another, students need to learn the fundamental principles of a subject matter rather than just master the facts.

As Bruner (1967) suggests, Lee encourages his students to construct hypotheses, make decisions, and discover principles by themselves. He has organized his content, identified the skills required, and illustrated the theories to be learned in ways that allow his students to build their new knowledge on their existing experiences. Lee facilitates a

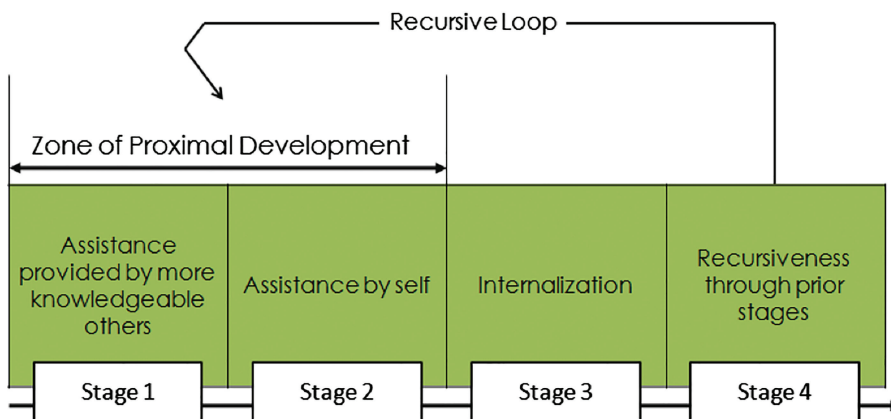


FIGURE 5.14 Recursiveness through prior stages.

recursive learning process that is strengthened by scaffolding. This powerful, constructivist approach results in students that are actively engaged, motivated, autonomous, responsible, and independent. Most of all, the tailored learning experience enables the development of their creativity and their acquisition of critical problem-solving skills. Ultimately, the students own their knowledge because they are so entwined with its construction.

In Lee's classroom, the students play an active role in their learning ... and in Lee's. Learning has become a reciprocal experience for all. As much as Lee facilitates his students' learning of game design, they impact his understanding of what teaching is all about. Each iteration of the course, each rewriting of the syllabus, and each rethinking of the game challenge Lee's personal, epistemological stand. But this, dear reader, is another story.

So from my observer's perch, I continue to watch Lee's world of praxis and theoría as he creates unique learning experiences for his students, and they create amazing teaching opportunities for him.

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CASE STUDY 3

St Patrick's Fine Arts Elementary School



Caryn Lix.

Sixth Grade Teacher

St Patrick's Fine Arts Elementary School

Lethbridge, Alberta, Canada

About the Classroom

I'm Caryn Lix, I teach sixth grade in a small urban community in southern Canada at a public fine arts school. Our class can be composed of anywhere from twenty to thirty students with a wide range of learning needs, English language ability, and enthusiasm for education. Because of our school's fine arts focus, we have an extremely busy schedule full of amazing art experiences. Of course, that requires teachers and students to work hard to pack in the curriculum, and that can make it challenging to hold student attention. Enter the kingdom of *Cognosco*, in all of its glory (see the crest in Figure 5.15).



FIGURE 5.15 The crest of the Kingdom of Cognosco.

How Quest Ion VI Came to Be

As a science fiction author, you'd think I'd gravitate to a science fiction setting for my game—but I have a longstanding love of classic RPGs such as *Dungeons & Dragons*, and that's where my influence originates. I'd been integrating game-based learning in my classroom for a long time prior to encountering *The Multiplayer Classroom*, and I wanted to build on that preexisting foundation. So, one summer, I sat down and created the Kingdom of Cognosco.

Quest Ion VI is based on a very simple concept. Students are all members of the Kingdom of Cognosco (Latin for knowledge). In September they learn that they have been summoned to train for a vague but unpleasant event foretold for the near future. We spend the first month of school team building in various groupings as students create their own game world, mapping their home villages, and writing folk tales and songs from their homeland.

To ease parent concern about my unusual approach, I created a game manual each student takes home on the first day of school (see Figure 5.16). In addition to communicating the information that would typically go home in a beginning of year newsletter, the game manual explains a bit about game-based learning and helps parents understand what we're doing. I often receive comments from parents along the lines of, "I really don't get any of this, but my kid seems to love it, so thank you!"

In October the main game event occurs: King Ion VI is kidnapped by King Nocens of the warring kingdom of Ignarus, leaving his sister, Princess Lenis, in charge. The students are tasked with rescuing King Ion before it's too late.

Quest Ion Player Hotline/Support

Technical support is available during school hours or by appointment.

Please check Google Classroom daily for updates on upcoming game events!

Extra Parent Information

Please note that all assignments will be marked exactly the same as they would be in a normal class setting. The only difference is that instead of beginning by saying everyone has an A and subtracting points for failure, we are beginning at zero and adding points for success. If you have any questions or concerns about our class "game," please do not hesitate to contact me! Thank you!

Clquest courtesy FCTT



Quest Ion
VJ



Instruction Manual Welcome to the Kingdom of Cognosco...

FIGURE 5.16 The front and back cover of the game manual.

Rules of the Game

Because my class is a homeroom, I am able to permeate the game throughout all aspects of instruction and learning. This is the game's basic structure:

- Students are divided into teams which change three times during the year. Each time a team changes, a major event precipitates it (these are the kidnapping of King Ion, crossing the border into the lands of Ignarus, and arriving at Ignarus Castle). With each team change, we conduct team building events. For example, when crossing the border, students must work together to navigate the border swamps (a grid taped onto the floor in which students must step on certain squares in a precise order to safely reach the other side). In addition, students complete learning objectives in art, language, and the like in creating backstories and character events with each change.

- Students create avatars at the beginning of the game. I originally designed and printed these avatars, but I have since switched to using Classcraft, which is a really fun website designed for precisely this purpose. It allows students to track XP, action points for powers, and even monitor in game “gold” online.
- Gold can be spent on the website or in our classroom store. While the classroom store does contain some fun items, it also contains abandoned pencils, erasers, and school supplies. I am forever picking up pencils and rulers at the end of the day, only to have students complain the next day that they’re out of pencils. Now, they can get them back. By buying them. Since there are other things students would much rather spend their gold on, this has significantly cut down on the number of “lost” items at the day’s end.
- Students gain XP both from completing class assignments and in a variety of other ways. These include bonus quests, participation in school activities, or pretty much anything else the Game Master chooses to award it for. XP makes a fantastic “prize” for in-class review games. It never seems to stop motivating the students.
- I subtract XP *only* for incomplete homework. This has made a huge difference in the amount of homework completion in my classroom. Students do not like to lose HP, even if they are at full health.
- Many of the common elements in other multiplayer classrooms are present in my class as well. For example, each math test marks a boss battle. Instead of labeling the tests “Unit Three,” for example, I will have a specific monster with a short backstory at the top. This gets students excited to see the math test and learn who they’ll be defeating today!

Permeating the Classroom

Again, as a homeroom teacher, I have my students most days for the majority of the time. This gives me an excellent opportunity to build on the lore of Cognosco throughout the day. Social studies units become leveled quests (hunting and gathering, where students collect information; weapons crafting, where students use that information to create something; and battles, where students take what they’ve learned to complete final assessments). Language arts allows us to dive into story writing within the kingdom. Even our class “monopoly” game has been retitled “Cognoscopy” and given some fantastic touches.

A few years ago I went a step further and created a trading card game to add to the lore of Cognosco (see Figure 5.17). These trading cards contain weapons, characters, and places from Cognosco and Ignarus. Students receive about five at the beginning of the year and can war to win others in a game similar to Pokémon. They can also buy more from the class store. Obtaining all twenty-five cards earns students 1,000 XP.



FIGURE 5.17 Some of the cards from the trading game.

I also created achievements for the students, small tokens like “completed five bonus quests” or “got 100% on a math test,” as you can see in Figure 5.18. I sketched out the artwork for these and originally wanted them to be buttons the students could pin to their backpacks. The cost of this proved excessive, though, and I eventually lit on another solution: shrink art, otherwise known as Shrinky-Dinks! You can print onto this shrinkable paper, punch a hole in it, and place your “badges” in the oven for a few minutes to shrink them to a small, hard collectible. I give students a small carabiner on which to collect these achievements at the beginning of the year. Students are responsible for filling in weekly sheets to tell me which achievements they’ve obtained and need. Otherwise, tracking became time-prohibitive!

Of course, there will always be students disinterested in this type of permeation. While all students have enjoyed participating in the game in the past, some students buy into it with more enthusiasm than others. No student is required to participate in bonus quests or penalized for not engaging in the game, and some students go the whole year without achievements. Not because they haven’t earned them, but because they are indifferent to collecting them. It was important to me that Quest Ion VI enriches my classroom, not force students into a differently shaped box.

Saving the King

Throughout the year, we track our progress through the quest on a large map, using push pins to mark our location (see Figure 5.19). Our final unit of the year is a digital citizenship

Achivement List
















				
Digital Citizen: Contribute to the class forums	Expert: Get top scores on a quest	Game Master: Design a game to teach a concept	High Scorer: Join 3 school clubs	Editor: Find and fix your own mistakes
				
Champion: Complete 5 bonus quests	Knight Errant: Complete 10 bonus quests	Intern: Make 10 posts in the class forums	Jack of all trades: Join four school clubs	Wizard: Create your own bonus quest
				
Confident: Post ten different items on the brag board	Inspirational: Make an insightful comment in class forums	Participant: Join a school club	Sesquipedalian: Hand in an assignment with all words spelled right	The Thinker: Make an insightful contribution to class discussion

FIGURE 5.18 Some of the achievements students can earn.

unit on analyzing information online. This is combined with a final quest to save King Ion. Students combine a WebQuest with a few side-scrolling games I easily created using Gamestar Mechanic. Completing the games gives them secret things to click on the WebQuest site. For example, the final period of a certain sentence might take you to a hidden page listing a reward.

Once King Ion is safe, we have a huge classroom party in the form of a medieval feast. Students are encouraged to dress up, and we have pool noodle jousts, food, and celebration now that King Ion has safely returned home.

Results

I have been privileged to teach using games, and about game-based learning, in multiple settings: through professional development sessions in my local school board, on a 2-week cultural exchange visit to Dominica, and even in an international school in Tokyo. I have never yet failed to see games spark people's interest and enthusiasm for learning!



FIGURE 5.19 The classroom map.

Interestingly, while the overall results of this game-based classroom have been very positive, the individual results vary from year to year. One group of students may be only mildly engaged, or have a few learners who are deeply interested, while another group will throw themselves wholeheartedly into the quest. Over and over, however, I have seen the same thing: this type of game-based learning appeals *overwhelmingly* to the students who are traditionally least engaged in school. These are the students often most likely to engage heavily in games and to feel like traditional schooling does not suit them, and they are the ones most excited to become involved in the quest to save King Ion.

And for the record, I have never once had a student fail to become excited when we move the push pin representing King Ion back home to Castle Cognosco, safe at last. Whether that's because they've won the game or they know there's a party in the near future, I leave to you to decide.

RPI Designing Interactive Characters (Valeria 1)

THE FULL NAME FOR this course is “Designing Interactive Characters for Digital Games.” In the curriculum, it fell in the second semester of the GSAS major at RPI. It was predominantly made up of second year students with a handful of upper-class students. Several students were usually not GSAS majors but were students in related programs such as Electronic Media Arts and Communication.

It was a significant departure from the multiplayer classrooms discussed so far in several ways:

- the focus on more integration of coursework and gameplay
- the introduction of a significant fictional narrative
- the presentation of that narrative in a meaningfully dramatic way
- the inclusion of student input in how the game, narrative, and class would progress

A NEW SYLLABUS FOR A NEW GAME

If students take a second or third class from me—and many will over the course of their studies—some entirely new game elements are required each time. To do less would be to duplicate the experience enough students have had already, similar to teachers who recycle the same tired lecture notes over and over again. Obviously, this is exactly what I was trying to avoid, both for my students’ sake and for me.

Happily, “Designing Interactive Characters” gave me the opportunity to strike out into new territory, literally. I took lessons learned from designing ARGs that take place in an even larger swatch of the physical world than a classroom to move us out of that single room, both figuratively and literally. Let’s have a look at the syllabus (Figure 6.1).

Rensselaer Polytechnic Institute
Games and Simulation Arts and Sciences

75047 & 75048: Designing Interactive Characters for Digital Games

Section COMM-4210-01 & 02
Spring 2010
Days and Times TF 12-1:50pm
Room 2510 Sage Laboratory

Instructor: Lee Sheldon
Office: 4403 Sage Laboratory
Phone: 276-8264
Office Hours: TF 11-12
Email: sheldc2@rpi.edu

Prerequisites: COGS-2520 or permission of instructor.

Objectives

- Provide you with a framework for analyzing and designing game characters.
- Improve your analytic and design skills (including process skills)
- Introduce you to the practices of writers and designers who create characters in the games industry and in other media.
- Improve your presentation skills
- Add a completed project to your design portfolio

Format

This class is designed as a fantasy multiplayer game. You are the players. You will each create an avatar that will represent you in the game.

All you know is that you have been summoned to represent your guild at a mysterious gathering at the tower of a mage a continent away. Why you were chosen and the reason behind the gathering is unknown. Over time you will discover it.

This is an extremely hazardous quest. You will travel in a small guild party, balanced as closely as possible by 1337 skillz and interests. Hopefully the avatars you choose will support and complement one another so that you can overcome the challenges you will face, both natural and unnatural (Quizzes, Character Analysis Papers, Presentations etc.). Luckily your avatars will gain new skillz as they level up. These skillz are awarded with **extra credit**, and may be applied to any assignment.

At the beginning of the semester everyone in the class will choose and name their avatar, and choose their avatar's profession. Your next task is to decide the name and nature of your guild: its purpose and the land where it makes its home. Guild membership will be determined by final class size. You will begin your journey in your home territory, your starting zone. But your journey will take you outside of that territory, the classroom, and into the unknown reaches beyond.

FIGURE 6.1 Spring 2011 syllabus.

(Continued)

It is not compulsory to be 1337 in any particular profession. The final project will be an effort of the entire class. As the semester goes along, and the ways of avatars are revealed, more time will be allotted to it.

Grading Procedure

You will begin on the first day of class as a Level One avatar. Level Twenty is the highest level you can achieve. Your class letter grade will be determined by your final level. **You must be at least Level Ten to pass this course.**

Level	Skillz	XP ¹
Level Twenty		1000
Level Nineteen		930
Level Eighteen		900
Level Seventeen	5	870
Level Sixteen		830
Level Fifteen		800
Level Fourteen	5	770
Level Thirteen		730
Level Twelve		700
Level Eleven		670
Level Ten	5	630
Level Nine		510
Level Eight		410
Level Seven		320
Level Six		240
Level Five	5	170
Level Four		110
Level Three		60
Level Two		20
Level One		0

¹Your level will be determined by experience points (XP) on a 1000 XP scale. You gain XP by defeating mobs, solving puzzles and crafting.

- Solo: Create your level one avatar. (Written, 1 paragraph to 1 page, 15 pts.)
- Solo: Introduce your avatar to the class. (5 pts.)
- Solo: Create your avatar's 3 dimensions (Written, 1-2 pages, 20 pts.)
- Guild: present your avatars' 3 dimensions to the class. (5 pts.)
- Guild: Scouting: 5 observations of wildlife in its natural habitat throughout the journey. (50 pts. total)
- Raid: Guild reading presentation (50 base pts. each person, 1 of these per guild)
- Pick-Up Group: 2-Player reading presentation (75 base pts. each person, approx. Cannot team with fellow guild member) **OR**
- Solo: 1-Player reading presentation (75 base pts. but easier than above)
- Developing clever strategies to defeat presentation mobs can increase XP gained by up to 50 additional **extra credit** pts. (See **Raid Strategies** Below)
- Solo: Analysis of Real Person of your choice (Written, 3 pages, 50 pts.)
- Solo: Analysis of Analog Character of your choice (Written, 3 pages, 75 pts.)
- Solo: Analysis of Digital Character of your choice (Written, 3 pages, 100 pts.)
- Guild: Midterm Prep Guild vs. Guild PvP (25 pts.)
- Solo: Defeat Level Boss (Midterm Exam, 100 pts.)
- Solo: Final character stories (Written, 5 pages, 145 pts. each)

FIGURE 6.1 (CONTINUED) Spring 2011 syllabus.

(Continued)

112 ■ The Multiplayer Classroom

- Class: Craft Final Project: Create Mage's Chamber (Digital, 30 pages, 145 pts.)
- Solo: Class attendance (140 XP total, 5 pts. per day of attendance)
- Guild: Peer Review Secret Ballot (**Extra credit**. 0-50 possible XP as follows:
 - Guild Leader 50 pts.
 - Raid Leader 40 pts.
 - Solid Guild Crafter 30 pts.
 - Needs Rez 20 pts.
 - Leroy Jenkins 0 pts.

Grading is rigorous. Spelling, grammar and punctuation must be proofed. Total XP will suffer otherwise.

Hints

Information that may help you succeed in your quest:

- LMS class website. The site will evolve throughout the semester. Even though it will look like a map, it will be where you go to turn in assignments, check the class calendar, find additional resources and reading materials etc.
- Careful readers will notice that from Level 10 up the XP system mirrors percentages associated with letter grades.
- We will supplement the XP chart with a Leaderboard that indicates the number of students at each level to help track personal progress, particularly in the lower levels.

Raid Strategies

As noted above clever raid strategies can increase the amount of XP awarded for defeating presentation mobs. As in any MMO, successful raids are built upon the attempts of others. Your basic slideshow presentation where you read off the bullet points like some tired professor will only qualify for the base number of XP. Other methods such as videos, contests, performances and of course games are encouraged, even expected.

Attendance and Conduct

Attendance will be taken, and will count toward the final grade (see above). You are expected to attend every class. Assignments are due at the *beginning* of every class. Late assignments will fail to achieve the highest amount of XP for that assignment.

Plagiarism, submitting assignments written by others, and other forms of academic misconduct are governed by university policy. In a word: DON'T.

Classroom conduct: Participate with civility and an abiding appreciation for the power of words. Respect others, even those who hold opposing views.

Required Text

Character Development & Storytelling for Games (Second Printing). Lee Sheldon.

Suggested Reading

Better Game Characters by Design: A Psychological Approach. Katherine Isbister.

Calendar

The calendar will be found on LMS. It is subject to change; and will be updated. Check it regularly, especially if you miss class.

FIGURE 6.1 (CONTINUED) Spring 2011 syllabus.

You will notice the section that was called “Description” in the previous courses is now headed “Objectives” in this syllabus. This course had been taught by several people before I inherited it. The bullet points were only slightly edited from those who had gone before.

The Format section introduces the new game. Not only would the class create avatars, but those avatars would also for the first time be instrumental to the game. Students would create detailed backstories for their avatars and choose specific professions for them. And these would be woven into the story of the game. Gone were the classes that represented game development team roles. These professions were part of their characters within the world of the game.

The movement from zone to zone would now represent that journey within the classroom. This movement mirrored a journey across a fantasy world that would also require them to move beyond the classroom, even out of the building.

Guilds would choose their names, but they would be given the name of their starting zone (a town in a land called Valeria) and a brief description of its primary feature. They would then bring their starting zone to life. No zones would be named after game design concepts or famous game designers. These zones were located within the world of the game. I planned that together we would create a map of Valeria, indicating where the zones were in relation to one another, and suggest the direction their characters would travel to a tower of a mage who apparently summons them. The entire class would build a playable version of that final level of the game: the entire tower with six doors which could only be opened by solving puzzles.

Because this was a class in creating characters, each guild would be given a NPC, again with a very brief description, that they would design together: name, physical description, past, current life, and psychology creating a three-dimensional character.

NPC

Unlike a player’s avatar (or player character), an NPC is controlled by the game program.

Your Classroom

While your class will probably be on an entirely different subject than designing characters for games, the following may be of use when asking your students to create their avatars.

When we talk about a three-dimensional character, I don’t mean a character modeled in software packages such as Maya or 3ds Max. I’m speaking of the three dimensions of character from drama.

Finding a precise definition of the term is a fascinating quest all of its own. I take mine from *The Art of Dramatic Writing* by Lajos Egri, a book revised in 1946 from an earlier book published in 1942 and called simply *How to Write a Play*. I've always thought the second title is far more dramatic. The three dimensions of a character, according to Egri, are physiological (which I shorten to physical for my students), sociological, and psychological. I define them as follows:

- The physical dimension of a character is simply the physical description: height, weight, body type, ethnic origin, scars, impairments, and so on.
- The sociological dimension of a character is both past and present: the character's origin, upbringing, place of birth, and so on, plus the character's current environment.
- The psychological dimension of a character is how the first two dimensions have formed the character's view of the world. Any two people born in the same place and with similar physical features may react entirely differently when confronted with conflict or a relationship.

The students would have two assignments to build characters, and those characters would change as the game progressed. One of the concepts I teach in my game design classes is the “consistency” of the world. I tell my students that they can build the worlds of their games with any physical laws and rules they want, but everything within their worlds must conform to those laws and rules. They should not be broken arbitrarily simply to provide a new gameplay obstacle or a twist in the story.

Your Classroom

Anachronisms are terribly hard on immersion. If your multiplayer classroom is going to be set in the town where you teach, Thailand, on Mount Olympus or Mars, all of the elements in your game should belong in your world. It is a teaching opportunity for them to learn concepts in math or reading or history or geography. (I know somewhere Carmen SanDiego is smiling.)

To teach the students the concept of consistency, I allowed them a lot of freedom in their initial character designs deliberately so that they might be forced to change them. Game design is not static. It is a process.

In the Grading Procedure section, I provided this class with a new version of the leveling chart.

- I dropped the explicit conversion to letter grades, although the admonition that students needed to reach level 10 to pass the course was in bold type.
- There were twenty levels possible. This gave me a good range in which to distribute the total basic XP of 1,000 pts.
- The first ten levels closely resembled standard RPG game levels with increasing XP needed for each level.
- I added a new column. Again, much like characters in standard RPG games, players would achieve new skills every few levels. At first, I considered actual skills that would help them in their game quest. This quickly became too elaborate. So instead I decided to cut way back on the random extra credit opportunities and give them five XP every few levels to add to any graded assignment they wanted. This I hoped would give them an additional incentive to do well. The spelling of Skillz with a Z is another example of l337 speak.

A new class of assignments were the “Scouting Expeditions.” I originally planned for five but cut the number to three as more time was needed for presentations. These “observations of wildlife in its natural habitat” would require the class, divided into guilds, to journey out into the real world to study real people. This was an idea I continued to use, basically assigning students to stalk other people on campus, trying to figure out aspects of their targets’ characters based on observation and overheard conversations. This clandestine and borderline naughty student behavior was, of course, immensely popular.

Your Classroom

Obviously, the age of your students will dictate whether such tasks should be assigned! But moving some lessons out of the classrooms is a proven technique and can work especially well in a multiplayer classroom. A field trip to a museum could include a scavenger hunt to ensure students see the exhibits most important to the class. A trip to a nearby farm could include a game to match animals with their nutritional needs.

I dropped the random mob reading quizzes for this class as an experiment. There would be no pitches to industry guests, and their final grade was divided into two assignments: the completed digital project and a story featuring their avatars, other student avatars, and the NPCs they designed.

It's important to note that while all of the assignments were directly connected to the objectives of the class, they were not all integrated with the story of the quest that was developing as the class progressed. It was a consequence of the fact that I had split the perspective of the class in two: students were both players and creators. I warned students early that because they were here to learn how to create characters, I would allow them to peek behind the curtain to see the Game Master at work. But I also wanted to see if an emotional attachment to their avatars and the NPCs they created could be nurtured and then utilized to create even more engagement in the class than I had seen before.

The syllabus also included a first attempt at a Leaderboard tracking only what levels had been reached by how many players. I only tried a leaderboard once more after this class. I'll explain why on Quest 11.

Your Classroom

Notice I have not turned your Quest Walkthrough experience in this book into a competition with other readers. You are adding to your XP as a positive progress report—accretion, not reduction, remember—and your newly acquired skills are being reinforced.

With all the changes in this syllabus from the first three, I wasn't quite sure what to expect. The most interesting changes for me would be tying class events and grades to the narrative of a game. How would the players react to this shifting between fantasy world quests and real-world concerns?

From the very beginning, the many differences between this class and the previous classes were apparent. The first was that their avatars would inhabit a particular land called Valeria. And, repeating the setup from the syllabus, they were told that they would represent their guilds at a mysterious gathering at a tower on the other side of the continent. Why each character had been chosen, and the reason for the gathering was unknown. But it was promised that over time, they would discover the purpose of their quest.

USING BACKSTORIES

A second difference was that before all that was required of students was to choose a name and a visual representation of their avatar, but here the assignment was also to provide a backstory for them.

BACKSTORY

The backstory represents a character's life up until the moment the game begins.

Some simply read this backstory aloud as themselves, ticking off facts. Many told their stories in character (Figures 6.2 and 6.3).



FIGURE 6.2 Albert, a bard, performs a song.



FIGURE 6.3 Dan, the jester, amuses his audience with a cartwheel.

DESIGN CONSISTENCY

Given that one of the lessons of the class is that the worlds we create in games should have an internal logic and consistency, no matter how foreign and fantastical they might seem, I deliberately gave them very little coaching about the land they were to inhabit. And since the lesson and the game were one, my intent was that over time their characters would evolve to more fully match the world.

This quickly began to happen. Backstories shifted, sometimes subtly, sometimes dramatically to match the fiction of Valeria, as more and more of it was revealed to the players.

Remember that in previous classes this consistency was not demanded. Here, however, the class had a fictional setting that students would not only play within, but that they would help create. Also, given the name of the land and other suggestive words such as “mage” and “tower” for example, they had hints as to the setting of the game. This was not to be a multiplayer version of *Grand Theft Auto*. We were headed for that realm of high fantasy belonging to J.R.R. Tolkien and *Dungeons & Dragons*.

HOME SWEET HOME

There were two more differences in this class. The final project was being shared by the entire class. Instead, players were introduced to six zones. They were told the names of these zones and given a very brief description of each:

- **Wadi Shir** was a small outpost built up around an oasis in a southern desert.
- **Scaleport** was a busy port city at the intersection of two rivers.
- **Fenwick** was a seaport in marshlands.
- **High Reach** was a sparsely inhabited mountainous region.
- **Miscato** was a town amidst a great forest.
- **Far Plains** were grasslands dotted with small settlements.

They were then asked to vote on which they would call their home. This was a new way of building their guilds. I had asked for interests early on so I could make certain there was a good mix in each guild. There were twenty-three students in the class. After some discussion, we ended up with five zones housing four avatars each and one, Scaleport, with only three. The seating was adjusted so that each student who had chosen a particular zone was

now seated with the others who had chosen it. They were then asked to name their guilds. This was the only time I've ever had to reject the first name choice of one guild as highly unsuitable for a university setting or for this book. The guild's second choice was somewhat better I suppose. They settled on Shady Goobers.

THE GEOGRAPHY OF VALERIA

The first crafting assignment was for each guild to produce a map of their home and describe something of the culture to be found there. With these in hand, each guild sketched a rough map of the land of Valeria and presented it (Figure 6.4).

The Game Master added mountains to the west with a pass to regions unknown. It was assumed, correctly, that the mysterious tower would be found there. Discussion in the following class resulted in the specifications for the final map (Figure 6.5).

This map was the basis for the LMS page for this class. Blackboard, the underlying software divides everything into tables of cells, and, as mentioned, is really not designed for the freeform graphics we wanted. This screenshot in Figure 6.6 demonstrates the best we could do.

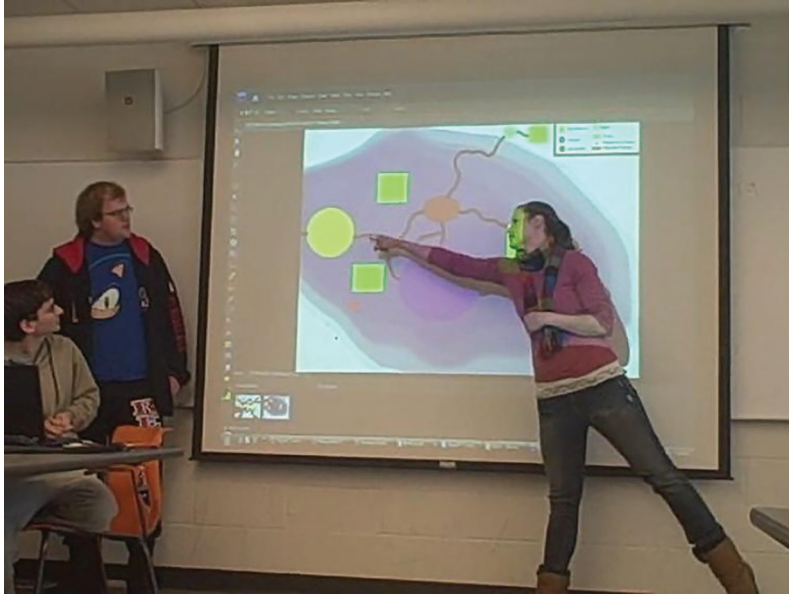


FIGURE 6.4 The guild Aesir presents its map.



FIGURE 6.5 The map of Valeria by Hipster and friends.

Tooltips again informed students what the links were for each zone except the Rift, the pass through the mountains into unknown lands. Clockwise beginning with the Rift:

- The Rift link was not yet activated.
- High Reach housed the Syllabus and Calendar.
- Fenwick was the assignment mailbox.
- Scaleport linked to class announcements.
- Wadi Shir linked to the LMS orientation.



FIGURE 6.6 LMS interactive version of the Valeria map.

- Far Plains was a window to outside resources.
- Guild halls were located in Miscato.

The class followed a narrative. In many video games, there are two parts to good storytelling: the original writing and how the story is delivered to players. A major mechanism in this class was messages from out of nowhere. Were they from a mage in the tower that will be the quest's last destination? An opponent perhaps? The source remained unknown until the guilds reached the tower. These messages were delivered to the class in the form of PowerPoint slides. Neither the LMS interactive map nor any PowerPoints were necessary to the game. I had access to PowerPoint, so I used it to project messages on the classroom screen.

Your Classroom

The map for the world in which you set your game can be printed on paper emulating parchment or plain paper with a futuristic font. Physical copies can be made for all of the guilds. The map could reside on a chalkboard. In your multiplayer classroom PowerPoints could be replaced by messages in a bottle fished out of the class aquarium.

MESSAGES FROM THE UNKNOWN

For the first two messages, the entire class was able to see all six messages directed to individual guilds to foreshadow their involvement in the game's central quest. Here is a part of one guild's message:

You who have banded together in the guild Deathbone
 Seek this person: a child of ten years, orphaned, left behind by a passing caravan,
 Taken in by a healer of that place for reasons unknown
 For the child possesses no healing powers
 Find that child and travel to Scalexport on the river far to the northeast.

The text I wrote incorporated elements of the backstory devised by the guilds for themselves and their home regions. I wanted to bring emotion into the narrative of the game, and characters were a good way to do that. Each guild's quest would require them to escort an NPC with a certain disability suitable to the fantasy world of the game. They were creating this character from the bare bones of the summons, giving the three dimensions of character, a backstory, and a life. Plus, because each of the NPCs were flawed in some way, having lost a power that they once possessed, a power that had *defined* them, the students' stake in their NPCs would be increased. For example: a mage who had lost the ability to cast spells. I began to toy with the idea of allowing an NPC to die if a guild fared badly on an assignment...

The six NPCs, named by the students, were

- **Janus**, a 10-year-old boy, who had healing powers, but had lost them.
- **Deri**, a formerly prosperous seller of potions in Scalexport, whose potions had lost their efficacy for reasons unknown.
- **Tom Foolery**, a remarkable thief able to charm any lock to open or cloud the minds of victims to become almost invisible, whose skill had now vanished.
- **Jurmund Njordr**, a hunter and tracker, who could no longer read the land he once knew or command the wild creatures to do his bidding.
- **Medea**, an ancient crone, once a powerful witch, whose spells now fizzled.
- **Asha**, a woman, once a shape-changer, but who had lost that power.

Your Classroom

What do you teach? Characters, whether thought up by you or your students, and their philosophies are great ways to introduce historical conflict, opposing views in politics, different scientific theories, you name it.

The second message summoned all guilds to Scaleport for what was to be their first scouting expedition in the real world.

That second definition is what we were up to on a cold day in February

Examine the good (and not so good) folk Scaleport.

Study their ways.

RPI's campus stood in for the town of Scaleport. The class split up into guilds and spread out across the campus to observe, take notes, and then report.

They had already interviewed and analyzed a real person of their choice for a crafting assignment, so they had an idea of what to expect. Still, working as guilds brought out more insights as they discussed their observations and theorized on who the people were: their jobs, attitudes on life, what their relationships might be, and so on. Some observations reported in the discussion that followed the scouting expedition were superficial, but others were surprisingly deep for such inexperienced stalkers. Sherlock Holmes would have been proud.

PREPARATION FOR THE FINAL PROJECT

The final project existed almost entirely outside of the game narrative because it involved building the level that completed the game using the mod tool built into the video game *Neverwinter Nights 2*. Students knew, for example, that the final level consisted of the tower and surrounding grounds and that there are six doors that must be unlocked by solving puzzles using the lost skill sets of the six NPCs. The Alpha was due on April 5.

PRESENTATION QUESTS

As the central quest progressed, presentation quests prepared players for crafting assignments, such as the analyses of characters both real and unreal, as well as for the midterm boss battle.

In Figure 6.7, we see the guild Angry Fashion Crusaders in the midst of their presentation quest. They illustrated key topics of their assigned material by challenging other guilds

STALKING

To stalk is to follow or observe (a person) persistently, especially out of obsession or derangement. That's one definition. Here's another one: observing fellow human beings for the express purpose of learning about human characters from the source.

ALPHA

Alpha is the phase in software development where testing begins and features are frozen, meaning that no new features will be added to the game. This is followed by Beta, where all features are completely implemented, and the focus is on usability testing and bug fixing. The final phase is Golden Master, when the software is ready to be released to consumers. We will return to these in Quest 13.



FIGURE 6.7 Angry Fashion Crusaders challenge the other guilds.

to add them to stories they made up on the fly. Candy was the extrinsic reward. Knowledge, practice, and fun were the intrinsic rewards.

ANOTHER MESSAGE FROM THE UNKNOWN

The third communication written on the wind was delivered differently from the first two. The means was still PowerPoint slides, but the messages were private for each guild. All players put their heads down on their desks. When a particular guild's slide was projected, members of that guild alone could raise their heads to read and record the message. Once the messages were introduced in the class, I would add them to their LMS private areas for future reference.

The Message for one guild reads in part:

You of the guild Aesir,
 Jurmund Njordr has told you of rumors
 Blown down the mountain passes by the wind
 Of a creature howling in pain, somewhere out in the snow
 Even though Jurmund has lost his powers as a hunter
 He feels drawn to find it if he can.

This message set up my experiment to see if I could introduce serious human emotion into the game. All guilds were told that, while individual success or failure would be measured, the side quest referred to in their messages would be directly affected by their guild performances in the boss raid (midterm exam). How they did in the boss raid would be directly tied to the resolution of the midterm quest and any phat l00t that might be rewarded for its completion.

The conclusion of the first part of this side quest—actually the first step in a quest chain—would be determined by the midterm test results and a debate among the guilds as to the fate of the creature mentioned in the rumors related by Jurmund Njordr.

PHAT LOOT

phat 100t is more l33t speak. This refers to good rewards recovered after defeating a mob.

QUEST CHAIN

Quests need not all be isolated from one another. Quest chains are a series of quests, one leading to the next. Quest suites are a group of quests related in some way such as a single quest giver or geography.

Your Classroom

Quest chains are a great way to structure a series of lessons that tie together several concepts. For example, let's say you're teaching arithmetic. You could construct a quest to reveal the concept of whole numbers featuring a caravan crossing the desert. The caravan reaches an oasis where addition is introduced to distribute water. The caravan moves on to an outpost where some camels will deliver their cargo and subtraction is taught here. The quest chain not only teaches individual concepts but provides a context for how they are all related to one another.

MIDTERM PREP PVP

The “Designing Interactive Characters” midterm prep guild vs. guild competition was changed in response to previous student comments. They had felt that it was a lot of work for no reward. So, this time I added some XP to sweeten the competition

1st Place: 25 XP per guild member

2nd Place: 20 XP per guild member

3rd Place: 15 XP per guild member

4th Place: 10 XP per guild member

5th Place: 5 XP per guild member

6th Place: Raid wiped (0 XP)

Adding XP had no effect on the intensity of guild vs. guild competition. It was still high (Figure 6.8).

However, after it was over, one student complained that the physical element of the competition was out of place in what was meant to be an intellectual exercise. He pointed out that the mentally agile players were at a disadvantage when facing more physically fit players. It wasn't just prep for an exam. His XP was at stake! I didn't want to lose the heat of the competition, which the physical task of racing for the Hat of Knowledge introduced, and the XP total wasn't large, but his complaint had some validity.

The problem, as I saw it, lay in the order of events. As before, each guild nominated a puller who would race other pullers to the Hat of Knowledge. The idea was that the winning puller would wait for his guild to find the answer in the book and then run for the hat. From there, they had 30 seconds to prompt him with the answer, which he then needed to repeat (sneaky memory exercise as a game rule).

But the competition was so enthusiastic that pullers would grab the Hat of Knowledge before other guild members had found the answer, hoping that the answer ritual could



FIGURE 6.8 Intense competition, but lots of laughter, in the midterm prep.

be completed correctly in the allotted time. The only penalty for this was that if the guild failed to answer the question in time, they could not try a second time. The remaining guilds would race for the hat again, and since their guilds already knew the question, they had much more time to find the correct answer.

In addition to adding XP for this guild vs. guild competition, I added a new rule that was designed to address exactly what the student would ultimately complain about. Since I was adding XP, I wanted to try a two-tiered point system to focus attention on the intellectual, rather than the physical. The puller would have a chance to try and answer the question on their own before her guild could find the answer. But they would only get one point for it. If they waited, and grabbed the hat only after their guild signaled they had the answer, and the guild indeed answered the question correctly, the guild would get two points.

Explaining this idea led to so much confusion, however, that I finally asked the class if they wanted to try it, or should I simplify the rules. They overwhelmingly voted for the latter. Allowing them to vote on the change in rules meant only that one student complained after it was all over. Not bad, but in the future, if this minigame remained the same, I decided I would try subtracting game points from the tally, whether they translate to XP or not, for wrong answers. That, I thought, should shift the gameplay from “grab and hope” to “learn and then grab.”

MIDTERM BOSS MOB (FROST LIZARD)

There were fifty questions on the midterm. Forty were to be answered individually. For the last ten as long as one member of a guild had the correct answer, all got credit. The satisfaction of helping the other members of the guild continued to be a powerful intrinsic reward.

At the top of the midterm was an introductory paragraph that one might not usually expect to see on an exam:

Midterm Boss Mob: Frost Lizard

Over forty feet in length, the frost lizard is the largest and most vicious reptile known, and its bite is one of the most poisonous. To treat the victim of a frost lizard you must create a healing poultice with which to dress the wound. One of the primary ingredients in this poultice is the blood of the specific frost lizard that inflicted the wound. So, defeating the creature, and collecting as much of its blood as possible, is the only way to save its victim. Each adventurer will have the opportunity today to collect up to 50 drops of frost lizard blood. You will receive one XP for every drop of blood you obtain. Good luck. It won't give up its blood without a struggle. You may find you must shed some of your own. And there will be consequences if you fail...

This was the next step in the quest chain begun with the rumors of an injured creature. The creature was found. It was a snow leopard mortally wounded in the battle with the dragon. While grading the exam I totaled the XP each of the guilds received. That number was the number of drops of blood needed to save the leopard. That threshold was a C average for the class. Grades on the midterm were the highest of any exam I have ever given. The lowest grade was a B-. The average grade for the class was significantly higher. The Snow Leopard could be saved. But I had another idea I wanted to try.

The exam consisted of forty questions students had to answer on their own. I added ten more questions at the end of the exam with this additional notice:

The battle is almost done. Now is your chance to aid your guild. On the final 10 questions, if any guild member gets the answer correctly, ALL guild members get a drop of blood and the XP.

I remembered that rush of exhilaration students in my previous class felt when they were able to answer a question for their guild. What if I gave these students a chance to answer multiple questions on a major exam? My concern was again that guild members would have identified who among them studied the hardest. The quiet kid with the glasses, remember? What if the rest sat back and let their colleague shoulder the burden of answering? I was gratified to discover that all members of every guild tried to answer as many of the last ten questions, as they could. I realized why. The lure of the potential gratitude their guildmates would feel for them, again drove all members to try their best. The potential for that intrinsic reward was powerful. I have included this idea on all of the exams I have given since that day.

Your Classroom

I strongly encourage you to try out this experiment. The results are not only better grades but unite your students in a common cause.

THE PROBLEM WITH THE SNOW LEOPARD

Messages to the guilds made it clear that the wounded snow leopard was to be transported to Miscato to Medea, the witch the guild Park Rangers were protecting. Five of the six guilds were united in Miscato at this point. The last was still on Far Plains. Each of the five NPCs seemed necessary to save the snow leopard, even though all had apparently still not recovered their powers. And each NPC had grown strangely secretive. Once in Miscato the guilds were faced with a choice: give all the blood they had recovered from the Frost Lizard to Medea or retain it.

The Message for the Angry Fashion Crusaders text reads in part:

The witch, Medea by name, demands the blood you have collected.
 After she has gathered all the blood, she will try her spell
 Although she has known only failure of late,
 And then the child, Janus, now sickly himself, must call upon powers
 That have deserted him.
 So that the snow leopard may be whole once more...
 But you must ask yourselves, do the others not see the snow leopard
 Is a ravening beast? Once healed, who knows where its hungry eyes might turn?
 Will you give Medea the blood?

The messages concerning the snow leopard were neutral for Deathbone, the Shady Goobers, and Aesir. The message for the Park Rangers made it clear that they were to argue in favor of giving the blood to their NPC, Medea. As you can see above, the Angry Fashion Crusaders should be the most suspicious.

My intention was that the students would frame the debate from the points of view of both of the two roles they were given: players in the game and designers of the game. I felt sure they would be able to step outside the story and arrive at the decision that best served the game. The lesson, already articulated several times in class, was that whatever direction they might want the narrative they were working on to go, the needs of the game must come first. But I had made a serious mistake.

These were gamers, seasoned role-players adept at immersing themselves in a narrative, even one as thin as this one. They carried on an increasingly lively debate, but only taking positions consistent with their avatars' characters. I had allowed for the possibility that some guild or guilds might withhold the blood by creating two continuations of the quest. But I had to prompt them to include their opinions as designers. And even then one guild, Shady Goobers, was adamant that they had no idea which direction was more dramatic. Withholding the blood made for some great drama as the debate proved.

I had also kept them in the dark as to the plight Chasers of the Dawn were facing. All alone in Far Plains, they had their own issue: Asha, the shape-shifter they were protecting, had vanished before the battle with the Frost Lizard. They had been given the choice to search for her, or to remain in their village as they had been commanded. They chose to remain. On this day the choice was offered to them again. Again, they chose to remain.

I realized too late that I had been caught up in maintaining the mystery of my story and had totally dropped the ball in terms of sharing the intentions of the Game Master. The debate should have always been from the point of view of designers, not characters. I should have made that clear.

In the end I had Chasers of the Dawn members, as designers, relate Asha's disappearance. It took only seconds for several students to realize the snow leopard might in fact be Asha, who had somehow managed to shift into a snow leopard but was now for some reason trapped in that form. Still the Shady Goobers insisted, quite rightly as I've realized, they would not give up their blood. So, the quest took the second path I had prepared just in case.

I resolved to learn from this mistake. The designers would have all but one final twist laid out for them. It was my intention all along to reveal almost everything long before we reached Beta. At first the lesson I took away from this mistake was to reveal the mystery sooner. Actually, what I now realize, is that is far better to "spoil" the surprises, so your team knows what is expected, particularly since they must build the final level! Sigh.

Your Classroom

This, I should point out, is not what most classes would face, including yours. Teachers may keep their secrets if the subject matter is not game design. In this way an uncertain future remains the way it does in any story. That is one of the powers of narrative. As a species we are born both storytellers and those who are captivated by a story. It doesn't have to be a prize-winning story. It simply has to awaken that desire in all of us to find out what happens next.

Otherwise the game progressed well. Attendance was at its usual high (except for the Friday before spring break!), and I was getting excellent enthusiasm and work from the students. My primary interest was how tying exam results to the narrative track would work. The good news is the exam and narrative fit together. The debate lesson I had intended teaching, being able to separate personal wishes from what would be best for the characters and the game, became instead a lesson for me.

I wondered how the players would react when an NPC died as a result of a low grade. Would their concern for the NPC's safety—a great way to evoke emotion from players in a video game—cause students to strive for higher scores? They did too well on the exam. The lower grade did not occur. The NPC survived. That experiment at least was a victim of the class' success. I would return to Valeria, but not until 2016. That story follows later in this book.

The final project, the collaborative student version of the final level set at the mysterious tower with its six fountains and six doors, was a success. The melding of the students as players and designers for the most part worked well with the biggest hiccup being the debate detailed above.

Many aspects of the original multiplayer classrooms have now been shared, both successful and not so much. You may want to take the time to reread the skills you earned as you began to level up in this book. In the next two chapters I will focus on highlighting specific new approaches I experimented with at RPI after the first edition of the book was published. They cover seven courses at RPI from the fall of 2011 until the spring of 2015.

QUEST 6 WALKTHROUGH

- Including a narrative gives a structure to gameplay. Many more teachable moments can become part of the game.
- Consider using Egri's three dimensions of character when assigning your students to create characters.
- If you create a world in which your game takes place, be consistent with its elements.
- Tie field trips to gameplay.
- Create quest chains and quest suites that link your lessons together. (Fundamental Concept)
- Set aside a few questions on your exams that if any guild member gets one of them right, all guild members get XP. (Fundamental Concept Repeated!)
- Narrative can give structure to your game design.
- Narrative gives you the ability to tap into that desire in all of us to find out what happens next in a story. (Fundamental Concept)

CASE STUDY 4

Solent University



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Introduction

In January 2019 I found myself teaching at Solent University in Southampton, UK. It was yet another year where students of the Game Development (Software Engineering) and Game Development (Indie) courses had to do one of the most theory-heavy and dull units offered, Software Engineering for Games: Methods and Tools. They were prepared for the upcoming onslaught full of documentation-heavy coursework involving Gantt Charts, Work Breakdown Structures, Risk Assessment, Class Diagrams, and the like.

In our favor, the unit had a practical aspect to it. Students would have to make a game as a group. Also, in our favor, the game wouldn't have a specific brief, as we weren't evaluating game features and mechanics, but the process itself. That's when, while designing coursework for the unit, I felt as if I had been struck by lightning. I could turn the classroom into an RPG by combining both Tabletop RPGs and one of my favorite board games: Betrayal at the House on the Hill.

Prior to this I had used XP and levels. However, this time around I wanted to focus on the role-playing element on its own. Betrayal is a board game that plays like a rogue-like video game; Players control characters who must navigate a haunted mansion where the rooms of the mansion are different every time and every session features unique scenarios and

one player’s character who becomes a monster. The idea was to allow the students to role-play during class as characters venturing into the haunted mansion I called “Blackthorn Manor.” Anything they did within that house would be added to their team’s assessment brief, what was required of them in the finished code they wrote.

Thus, the “Code-Playing Technique” was born. This combines both role-playing and coding. Students would role-play their character’s story within Blackthorn Manor and the dynamically generated events that unfold would determine their final product brief. They would have to code everything afterwards exactly as it happened. In traditional RPGs you express yourself through words, but with “Code-Playing” they would have to express themselves through code.

Implementing a Game System for an HE Unit

The idea felt incredibly fun and my immediate thought was “How hard can it be?” Figure 6.9 shows me and a couple of my students. We’re still smiling, but it did not turn out to be that easy.

The first challenge for every game is to make it fun and every assessment brief unique. To make the game fun, we put tabletop RPG elements into play, starting with a character sheet that would represent an “Explorer” in the Blackthorn Manor. Every student team collectively controlled a single character and they would have to role-play that character. Each of the characters had six unique traits:

- **Strength**—The raw power as well as ability to lift and/or throw heavy objects.
- **Agility**—The degree to which a character can dodge or move nimbly (and quietly).



FIGURE 6.9 Me and two of my students. Can you spot the academic?

- **Intelligence**—Measures how smart a character is. When confronted with a puzzle, players would immediately jot down an answer in their in-game journal. It defines how fast someone could read or identify a pattern in the environment.
- **Willpower**—Measures the character’s defense against darkness, seeing through illusions and resisting temptations.
- **Perception**—Measures how easily a character can know if someone is sneaking around or hiding. It also helps to identify hidden objects and find important items such as keys.
- **Charisma**—The ability to use diplomacy, lie or intimidate another character in the house, or to be a natural leader.

The explicit instructions given to the students were to create a character that represents their team, write a small backstory explaining the character’s occupation, and why they are exploring the manor. They would role-play that character during the four role-play scenarios in the semester.

On character creation, all characters had all traits initialized at level 1. Each trait could increase as much as level 8. Every level required one skill point. Students would use die rolls to allocate them to the above six traits. This would mean all characters were unique in traits. The traits would influence how well they were dealing with the in-game events.

Betrayal is a board game with over fifty different rooms, over thirty items, over eighty different in-game events, and a pool of at least fifty end-game scenarios. See Figure 6.10.

There had to be certain limitations to make the game manageable for the class.

- All the floors of the house had the exact same layout.
- All the floors had placeholder rooms which could transform to any room.

As such, given the nature of the layout, students could begin with the architectural level design they would code as early as they wanted, and they would discover what those rooms held during the live role-playing sessions. All room types were drawn from a pool of fifty rooms which were put on paper. As “Game Masters” we roughly described what the rooms contained, and the rest was left up to the imagination of the students. Every time an explorer discovered a new room, we would either have a random event occur or an item found. There were also NPCs in the manor. All teams would encounter different NPCs, blindly randomized before the unit even started. As Game Master instructors would have to role-play all of them during the role-playing sessions, and considering how many teams would be playing in a single 3-hour session, the dialogue was one of the toughest parts. On

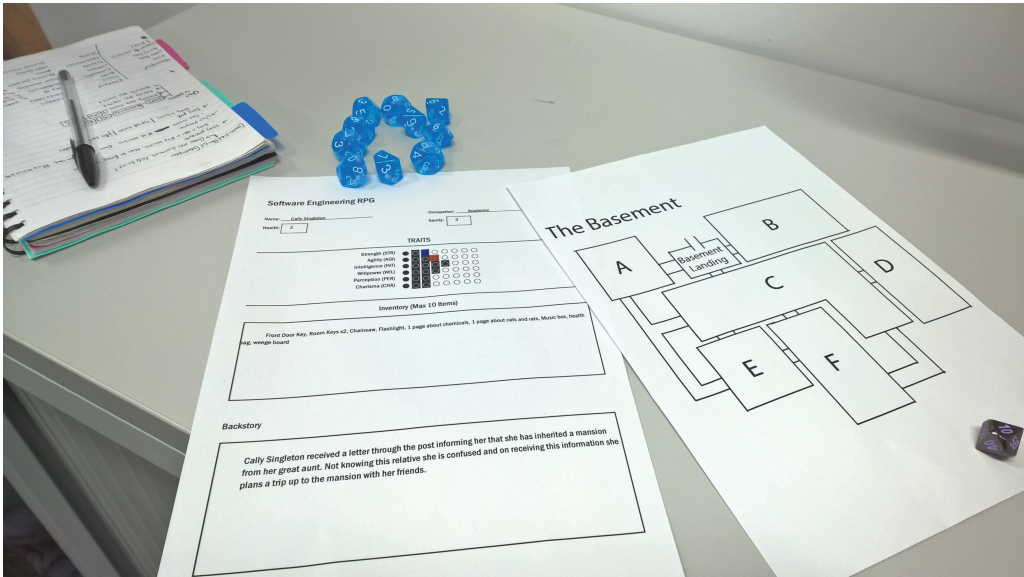


FIGURE 6.10 Character sheets and map layouts.

the other hand, this would mean students were required to find or create assets representing these NPCs, give them their voice, and make them alive for the video game version they were programming. They would have to repeat the dialogue exactly as we enacted it in class, so I would urge them to record the RP session.

Finally, the most unique factor about any brief was the end-game scenario, which would be revealed in the fourth RP session. This was ultimately decided based on the following factors:

- Rooms discovered during RP sessions
- Exactly what events occurred during the three previous RP sessions
- NPCs encountered during RP sessions
- Items held in inventory
- The grades of the students

The last is an important factor. You don't want to give students who struggle with code a combat-heavy scenario with a ton of mechanics. You would rather help them achieve. That made designing the scenarios very difficult, because based on the board game there

were rules only known to the characters exploring the mansion and rules only known one player who would become a monster. In our case, the traitor was always one of the NPCs. Some sample scenarios for advanced students include a **Witch** who turned everyone into an animal, a **Werewolf** who would only be killed with crafting silver bullets and being shot with a revolver, and a **Vampire** who would wake up after a certain time interval and could turn others into vampires. A sample scenario given to beginner level teams was one where a **Voodoo master** would hide dolls within the house and they would have to solve four riddles to find them and burn them all. This one featured no combat for example.

Running the RP Sessions

So, the simple idea had a very tough implementation. After hours of design, it was time to run the experiment in class. Overall, we had six teams from the Software Engineering course and three teams from the Indie course participating. During the first session, all students were aware that this unit would involve role-playing sessions, and these would have the students roll a character, keep a character sheet, and through the character's adventures in the mansion during four discrete RP sessions their final project brief would be revealed to them (see Figure 6.11).

One of the things I encountered during the RP sessions was the fact that it took way too long. In the first RP session the students fully explored the ground floor of the house, featuring at least seven rooms, some with items and some with events, and furthermore interactions with the first two NPCs. It took at least 30+ minutes to do this for the six teams I had in class and to be honest, I overran regular class time and kept the last team in class



FIGURE 6.11 Students finding their way around the manor during role-play.

for an additional 20 minutes. This taught me that I should either come with the rooms and events pre-rolled or reduce the content overall.

The second RP session went much smoother. I brought an app that would choose the rooms and items, and then display the room or item name with a simple tap on a mobile device. It went a bit faster, but we still hit my limit of 3 hours within the class. And they still had the coding to do (see Figure 6.12).

In the third RP session we speeded up play and had the exploration of the Basement, discovery of five basement rooms, and the last items within the inventory: All done within 2 hours and 30 minutes.

In between the third and fourth session I had to determine what scenario each team would get based on everything that occurred in the previous three sessions. For example, the character controlled by team Joes had her soul stolen, she got bit by a snake, poisoned by a plant, chopped by a fanatic butcher, burned from both an incinerator and a flaming man, and cuffed by force from a possessed policeman. Thankfully she could use a first aid kit because of her high intelligence stat. In the end, I adjusted the scenario they received, the advanced one with the witch, so weakened characters could manage it.



FIGURE 6.12 One team's RP session. I'm not sure why he's smiling. He will have to code the bad thing that just happened to his character.

Postmortem and Data

Positive Outcomes	Negative Outcomes
<ul style="list-style-type: none"> • Minimal admin in-between classes as the bulk of the design was already done, unlike an XP system that requires constant monitoring per student. • Insane amounts of fun during class. Student motivation was sky high and they kept coming back for more. Attendance and participation flourished. • It is also apparent especially from the second RP session and after that students develop a strategic way of doing RP because they have already found out by the first RP session that the crazier they go with RP the more they will have to implement. • Done right, students get a valuable portfolio piece in the final coded version of the game. 	<ul style="list-style-type: none"> • Too much prep time! Academics using systems of this type should be ready for some heavy upfront workload. • If content is not planned wisely, it can take tremendous effort and experience to complete the role-play session with many teams in class and finish within a given time slot. • Not recommended for individual RP or when content is a lot.

We also received student feedback regarding this experience. Thirty-five students from both courses took the survey and here are some highlights:

- 80% felt that being able to role-play made the unit more fun.
- 83% believe that role-play is a motivating factor.
- 72% believe that the way the content was gamified improved their learning of that given topic.
- 72% believe that controlling a character and living a story improved their attendance and participation.
- 58% felt that role-play improved their team bonding and collaboration.

On some qualitative responses that I found interesting on the open question of improving the experience:

- Students felt that the more socially dominant students would always be at the steering wheel during role-play, forcing the others to program without too much freedom.
- Too much freedom shouldn't be allowed, as careless role-play would dramatically reduce the quality of work produced in the unit as the students would have to manage the extra generated workload versus polishing fewer, wiser choices.
- It would be interesting to have characters of one group interact with characters from another group in cross-team activities.
- Students would like a course-wide approach, where they would have characters from the first year and develop based on the student performance throughout the units.

But the most important and surprising metric was the last question: “Do you believe gamification improves student motivation and/or enjoyment and/or attendance?” The answer was a whooping 100%. I couldn’t believe my eyes. There is always someone who disagrees but, on this question, everyone said yes! It felt like a rigged/forced answer, but it was not!

Additionally, seven out of nine teams managed to publish their games on Itch.io, a digital publishing platform for video games. It was fun to watch youtubers playing their games and trying to make sense out of the events in the house. While confusing for them it is extremely satisfying to see the live role-playing events your students experienced in class be translated into code and played by unsuspecting youtubers!

Conclusions, Final Impact

Finally, a month after the unit ended on May 2019, I was super excited to receive the award of “Most Innovative Teaching” during Solent Teaching and Recognition Awards 2019, an award given by the Solent Students’ Union (see Figure 6.13).



FIGURE 6.13 Receiving the “Most Innovative Teaching” award.

The rationale behind this award was the RP sessions, which were mentioned during the ceremony. Besides giving me a feeling of immense satisfaction for my hard work during this unit, the experience is also solid proof that gamification and role-play can have a significant impact during teaching, feedback, and assessment, especially in Higher Education. And the expressions you see on student faces during role-play and the levels of satisfaction you get in the end of the unit will make the entire experience totally worth it. Yes, I did feel burnt out designing and running the game for this unit but reflecting on the results of this academic year I would gladly do it all over again.

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More RPI Quests

Interactive Characters & Narrative (Archipelago 1)

WE START WITH A dilemma. As soon as you teach any class as a game, your students have played that game. They know both the structure and the content. And if they take a second class from you, or if their friends take the class you have taught already, or if my new students read the first edition of this book, they might be able to game the class.

So, the quest designed for Valeria went into the filing cabinet for a while. A new land would need to be conquered.

GAME

Used as a verb, to *game* or *metagame* means to exploit the design of a game; to use that design in ways it was never intended to be used to beat the game.

Your Classroom

We need to avoid the lazy practice of teaching the same material in the same stale way year in and year out. That goes for multiplayer classrooms, too. I don't just make changes to thwart students seeking to game my classes. I do it to keep me always questing to find fun ways to teach—fun for my students and fun for me. If you're reading this book, I have a sneaking suspicion it's because you feel the same way.

SYLLABUS

Since the structure of my syllabi has remained fairly consistent, I will not include more of them verbatim, but will highlight changes. For their overall structure refer to the complete syllabi in Quests 3–6. In *Interactive Characters & Narrative (Archipelago 1)* there were several changes from previous syllabi. As the title of the class proclaimed, this time we would be tackling both characters and narrative. In addition to some minor tweaking of the language several new objectives (in bold text) appeared in the syllabus.

Objectives

- Provide a framework for analyzing and designing game characters
- Improve analytic and design skills (including process skills)
- Introduce you to the practices of writers and designers who create characters and stories in the games industry
- **Explore key elements of narrative in various types of games**
- **Develop new insights that expand your creative boundaries**
- **Develop critical thinking skills that can increase your abilities as a professional communicator**
- Improve your presentation skills

The format section was similar to previous syllabi, explaining the class would be a multiplayer game, what the assignments would be called, creating avatars, guilds, and the vision of the game each guild would create as a written concept document. Then came two very different paragraphs. First, the setting was not Valeria:

The setting for the games you will create will be the same for each guild: an archipelago unknown to the outside world. These islands were once the mountain tops of a sunken continent. They are now being threatened with extinction by climate change that causes ferocious cyclones and deadly tsunamis. What will differ is the platform of the game each guild creates; the characters who inhabit the games; and the stories those games tell.

As a fundamental concept in Quest 3 states: setting limits forces more creativity from students than assignments that give them too much latitude. The second change, mentioned at the end of the above paragraph, was more radical. Games come in all shapes and sizes and are played everywhere. To give the students a greater breadth of knowledge than what they would achieve if each student was responsible for all of the

subject matter to be learned, I experimented with dividing up the learning. I was already using one approach to do this by having students present the readings. Here was another way. The guilds would explore the wider world of games and then share what they learned four times throughout the semester. These sessions were called tower defenses after a game subtype that was extremely popular at the time.

The platforms for the games were these: Traditional Controller Console and/or PC (Xbox, PS3, PC), Handheld (Smartphone, DS, DS 3D, PSP, Vita), New Wave Control (Wii, Kinect), Casual Internet (Site/Portal/PC), Facebook, Augmented/Alternate Reality (CAVE, Amusement Park Ride or Attraction, Real World). After the guilds were formed the platforms were chosen by a random die roll. In alphabetical order here are the concepts the students developed.

TOWER DEFENSE GAMES

Tower defense games are a type of strategy games where players try to secure their territory from invaders with a variety stationary structures that contain either attack or defensive capabilities.

GAME: ETHOS

Guild: Average Americans

This was an RPG designed for the Playstation Vita, a gaming device due to be released the following February and discontinued in 2019. Three governments ruled islands in this archipelago. Players could choose which society to join. Their choice would have ethical ramifications.

GAME: LOST FRONTIER

Guild: Project Louder

This game was a first-person RPG that also featured city building elements. It was designed for a traditional controller console and/or PC (Xbox, PS3, PC).

GAME: MYSTIC ISLANDS

Guild: The Island of Misfit Toys

This game for Facebook was a casual strategy game concerning a digital civilization beset by natural disasters. As the game progresses, more and more of the islands are recovered from the sea, and the mystery surrounding the ancient cataclysm is finally uncovered.

GAME: THE NEWCOMERS

Guild: God Tier

This game was an “on-rails laser tag ride,” a large-scale theme park attraction that allowed two simultaneous groups of riders to experience “intense laser shoot-outs and a thrilling track.”

GAME: SHADES OF GRAY

Guild: Dai Lobster

This is an action adventure game for the Playstation Move, a motion game controller similar in concept to the Nintendo Wii's remote and the Microsoft Kinect. The player could explore the islands and the ocean depths beneath them.

GAME: WATERBOUND

Guild: Segfault

This game idea was for an Internet browser game supported by ad income where the player could play a variety of sea and island creatures such as penguins and otters.

The sharing of different platforms exposed students to a greater range of information. Guilds were encouraged to question the other guilds' games as they developed them. I hoped this type of discussion would have an additional benefit to teaching new material to the other guilds. It would encourage defending guilds to base their decisions on solid foundations. This methodology doesn't need to be called a tower defense. It is obviously similar to graduate student defenses of their theses. Their questioners may be faculty, but the discussion incited by this student to student approach is of benefit to all students.

Your Classroom

The same principle of divided learning can be applied to any class, as long as your students sharing of knowledge is included in the exercise. It can allow for a deeper exploration of topics as well as encouraging student engagement. And therein lies a third prompt to learning: an understanding that they are all in this together and want to help each other to succeed.

In addition to tower defenses, this class again included five solo papers:

- Solo²: Craft analysis of Real Person of your choice (Written, 3 pages, double-spaced, 25 pts.)
- Solo²: Craft analysis of Analog Character of your choice (Written, 3 pages, double-spaced, 25 pts.)
- Solo²: Craft analysis of Digital Character of your choice (Written, 3 pages, double-spaced, 25 pts.)

- Solo²: Craft analysis of storytelling in old media of your choice (Written, 3 pages, double-spaced, 25 pts.)
- Solo²: Craft analysis of storytelling in video game of your choice (Written, 3 pages, double-spaced, 25 pts.)

But there were two new rules:

- These assignments could be completed *in any order at any time* no later than 2 weeks before the end of the semester.
- No more than one assignment could be submitted by a player in any 1 week.

The first rule introduced students to two critical skills all must learn. The first is time management. At the beginning of the semester the deadline for these assignments seemed far in the future. We have all heard Benjamin Franklin's wise admonition: "Don't put off until tomorrow what you can do today." Yet waiting until the last minute to undertake a job is a human trait learned early and well. The longer the other students waited, the more the realization struck them that time passes swiftly, and deadlines loom like boss mobs at the end of a scarily short road. A few students had somehow figured this out already. When the others realized that doing the assignment perceived easiest at the beginning of the semester, then progressing towards the one they least wanted to tackle, added to worry and limited the extra time they needed to effectively prepare for what they felt was the harder assignment, there was a scramble to catch up. A few could not and lost out on the potential XP.

The second rule not only taught them the pressure was also lessened when they distributed the five assignments equally over the semester, but it spared their overworked instructor facing a huge stack of grading at the end of the class.

Your Classroom

I think the success of this flexibility in both assignment choice and delivery date depends quite a bit on the age of your students. Can middle school students learn effective time management? I don't know. It's difficult enough for college students. I would welcome the opinions of K-12 teachers.

In the fall of 2019 I tried another idea meant to teach time management. It was easy to implement and was a success. It helped that Canvas, the LMS, tracked the date and time assignments were submitted! Here is the syllabus description from that class:

Early Bird XP NEW THIS TERM! Many students (and professors!) often wait until the last minute to do an assignment. This results in less proof-reading or none at all and that means XP will suffer. What can be done to encourage less self-destructive behavior? Early Bird XP! Turn an assignment in before 1:00 pm two days early and earn an additional 2 XP. Turn an assignment in before 1:00 pm one day early and earn an additional 1 XP. That doesn't sound like a lot? There are 21 assignments that qualify for this. That translates to a total of 21 XP for one day, roughly the equivalent of one of the three assignments that award the most XP in the class. Beat the 2-day deadline and you will earn a whopping 42 XP, the equivalent of two major assignments. The assignments that do NOT qualify are a) have the book on the first day, b) introduce your Player-Character and c) Introduce the antagonist. Team assignments qualify, but the contributions of all team members must be included for the XP to be rewarded to any member. Another addition was Perfection Points. These replaced the twenty XP from the previous class that students could choose to add to assignments to raise the total XP for those assignments. The Perfection Points were added to the grade chart at three levels: five XP on the fifth level, ten XP on the second level, and fifteen XP on the fifteenth level. Students received them if they attained those levels without missing a class. This turned out to be overkill. Student absences were already almost nonexistent. Attendance is very easy to keep track of when you can write EVERYBODY in most columns. They would be faced with two new Final Bosses who would critique their final game ideas: Richard Dansky from Ubisoft and Stephen Jacobs from the Rochester Institute of Technology.

And last, but not least, I finally spelled Leeroy Jenkins' name correctly.

CLASS

The prearranged setting, simple within its strict boundaries, worked well. Students stepped up to the challenge to map their games to the archipelago. Lively discussion, civil debate, and the enthusiastic participation of every student made the Tower Defenses a success.

For the first time the Raid Strategies section of the syllabus specifically stated that grades for the presentations would be based on clarity and inventiveness. Making this rubric explicit ensured that all presentations would be creative. At last there were no more presenters reading aloud black bullet points on white slides. Now, if we could only get some professors to learn this lesson...

Since one of the classes fell on October 31, one of the writing assignments for that day was to write a ghost story which was then shared in class.

Your Classroom

Writing a concept, as well as speaking it aloud, is an excellent practice whatever your subject matter. Its value has been proven over the centuries. It's the reason math students write equations for the entire class to see. Too often teachers today will use a slide to replace this practice. But seeing a slide flashed on a screen cannot compete with the comprehension and retention the immediacy of the physical act of writing down provides.

The Midterm Prep PvP rules were revised to deemphasize the physical race. Instead racers became scribes who wrote correct answers on the room's whiteboards. The rules to the competition covered a page and a half. Yes, the rules were complicated! Far more complicated than the rules in the class at IU where better and better methods were found for being first to answer questions.

At first the PvP game progressed without incident. But then something happened. The atmosphere in the room changed. Some guilds were no longer participating with the excitement they had shown at the beginning of the game. Two guilds, Dai Lobster and Segfault, were neck and neck for the lead. But even their enthusiasm was clearly waning.

Eventually I realized what was happening. In the IU class when one guild discovered a new method of playing the other guilds could adapt that method to stay competitive or found an even better way. That wasn't possible here. The other four guilds were eating the dust of the first two. All four were either in danger of receiving only a small amount of XP or ending up with none. They weren't happy. I was at a loss to know what to do.

The guilds decided for me. They changed the game as I watched. The guilds who were dominating obviously empathized with those who were being left behind. Someone did some math. Another scoured my arcane ruleset and gave the all clear. There was nothing that said the guilds couldn't help each other. The six guilds decided to join forces. They looked at me, expecting to have their plan shot down. But as in the IU class, they were not violating the written rules. They carefully avoided breaking the rules and collaborated to give correct answers to each of the losing guilds in turn. Instead of two guilds with twenty-five XP and the rest with none or next to none, the final tally was 25, 25, 20, 20, 20, 20. They laughed. They yelled. High fives and fist bumps were everywhere. An intrinsic reward had fought its way out of my extrinsic midterm competition.

After the class one of my favorite students, a kid on the autistic spectrum, came up to me with tears in his eyes and in a shaky voice told me that day was the best class he had ever taken. But I didn't save the day. It was the class.

RPI SPRING 2012

Writing for Games I

The GSAS curriculum was undergoing significant changes. The most important one to me was the creation of a writing for games concentration instead of just a class or two. At that time there was no writing for games concentration in North America. The core of the concentration would include an introductory class, Character and Story for Games, two higher-level writing classes, Writing for Games I and II, with additional classes such as Video Game Level Design, more generalized creative writing, communication and media classes, other supporting liberal arts classes, and a writing internship. The concentration would not be finalized until the following year. Another full multiplayer classroom would not materialize until the fall of 2013.

This class was much smaller, only eight students, so dividing into guilds to help manage larger projects did not make a great deal of sense. Most of these students had taken Interactive Characters and Narrative. This class focused on a wide range of specific writing assignments students particularly interested in writing for games would need to master. The syllabus states the class was entirely project oriented, designed with “certain multiplayer game elements incorporated.” Grading was still by attrition, accumulating XP as in a video game and XP was awarded for attendance. Even without all the gameplay and narrative trappings, these two cornerstones of the multiplayer classroom worked well in this environment. When I speak to other teachers or the press, I always try to emphasize that a teacher does not have to dive into the deep end of a class designed as a game but can test the waters with even these simple ideas.

RPI FALL 2012

Writing for Games II

Writing for Games II was the highest-level game writing class in the concentration and was similarly multiplayer classroom lite. It did include something new that I moved to Writing for Games I and all future higher-level writing classes I taught. One of the assignments was to write the same scene in screenplay format, setting determined by the instructor, three times in three different genres. The settings were always different for each class: a snowbound mountain cabin, a video rental store (remember those?) late at night, even a spring break on campus when a mysterious package arrives. The scenes usually contained three characters, one of whom sometimes arrived late, and the genres differed. Once scene might need to be written as comedy, war drama, and romance; another as mystery, western and political satire.

Your Classroom

I mention this assignment, not because it is limited to a multiplayer classroom, or a writing class, but because many of the ideas in this book can be used in any class. In this case the three different genres taught students how to analyze the elements of an assignment in the same way a math teacher will vary factors in an equation to show how such changes produce different results.

RPI SPRING 2013

Video Game Level Design

As the full Writing for Games concentration was settling in at RPI, I had more time to ease back into designing full classes as games. The format section of the Video Game Level Design syllabus stated, “This class is designed as a narrative game. You are a paid intern at Collar City Entertainment, an up-and-coming game development company. You will need to prove yourself to secure a permanent position. To do so you will compete and occasionally collaborate with eighteen other prospective level designers.” The name of the fictional company is derived from the fact that Troy, New York, where RPI is located, was famous for the invention of collars that were separate from their shirts, a style that lasted for almost a hundred years. The larger class size allowed for team assignments as well as solo assignments.

The class was greeted on their first day by my TA who introduced himself as the production manager at Collar City Entertainment. He cautioned them: “You may only be interns, but we expect you to produce and perform like full-time employees. Fair warning: we can’t keep all of you on once your internship ends in May. You will have to prove your worth, both competing and collaborating. You will be designing an original game chosen by all of you. You will collaborate in teams to create a tutorial level for that game, then each of you will be assigned a level to call your own.”

By the end of the class they had collaborated to create a full video game built with the Portal 2 Level Editor, a professional tool. No amount of moderate stress generated in the classroom would prepare them for the pressure they would encounter in a real game studio, but at least they got an inkling.

RPI FALL 2013

Character and Story for Games (Archipelago 2)

The syllabus for Character and Story for Games was very close to the Interactive Characters and Narrative class from the fall of 2011. While Objectives were identical, the Format section had some changes. The setting was the same as the earlier class: an archipelago. While the assignments were the same, there was no need to worry about anyone gaining advantage by tracking down material from the earlier class since the only chance for that to happen would be the midterm prep and exam, and the questions for those would be sufficiently altered. All other assignments, by their very nature, would be different. Readings were again graded for clarity and inventiveness. Students conducted observations of people around campus to see how much they could determine aspects of their characters. Again, there would be Final Bosses to critique game concepts. There was one notable change. The syllabus announced there would be “opportunities to gain phat loot for the avatars.”

Since many types of video games allow players to upgrade how their characters look and the equipment they need to play, upgrading our avatars would seem like a natural extrinsic reward. The problem I ran into was that the player avatars were created in different forms: some were constructed of materials like cardboard, others were pictures students had drawn, others were modeled digitally, or borrowed from the internet, and not all were human bipeds. Some had already added so much to their characters, they needed few additions. Delivering the loot became far too complicated. Ah well, at any rate I would try this one more time with more success in Character and Story for Games (Victorian London) below. The simple *Your Classroom* hint here could have worked for this class as well.

Your Classroom

Hopefully this will not become an issue, especially for younger students. You can pick whatever age appropriate form you like for your students’ avatars, including digital. Your choice should also take into account the labor or cost necessary to create or acquire the reward.

There was a new element in the midterm exam, announced again by a notice at the top of the first page:

IMPORTANT: Read ALL questions thoroughly before beginning to answer any. You’ll see why. You may use the back of each page, if necessary.

This exam contained only five questions in the main section and then five more in the section where students had a chance to aid their guild. The reason why is that the first five questions were extensive, and each built on the previous one. To illustrate how that worked, I'll list the first five questions here.

1. Write a one paragraph description of a video game you could design that incorporates Aristotle's 3 unities of Time, Place and Action. (10 XP)
2. Describe an NPC with at least 3 useful physical, 3 sociological and 3 psychological traits (for a total of 9); then explain how to reveal that character through both growth and development. (15 XP)
3. Create 2 more NPCs and a Player-Character, each with at least 1 useful physical, sociological and psychological trait. One of the NPCs must be a Mentor or Sidekick. Orchestrate all four characters from Questions 2 and 3 to generate conflict between them. (20 XP)
4. Create a series of four levels for the video game you described in Question 1 with all 4 characters from Questions 2 and 3. There should be a single story arc tying all four levels together.
 Include at least 2 character beats per character per level for a total of 8 beats per character.
 Use at least 2 story beats per level for a total of 8 story beats. The story beats must include at least two of the following: exposition in action, foreshadowing, the point of attack, an obligatory scene. Each level must include a crisis, climax and resolution. Maintain verisimilitude and consistency of style (30 XP)
5. Oh, darn! The Production Manager of your game studio says you'll have to cut a level to save production costs. Do it, but preserve all character and story beats, or you're fired. (25 XP)

The five "aid your guild" questions were ordinary knowledge questions:

1. What is one reason Carl Jung shows up in the book?
2. How many years separate The Great Train Robbery from Birth of a Nation? Why is this important?
3. Name 3 challenges when adapting a character from another medium.
4. How can commentary and gossip be used to enhance storytelling?
5. Give the most correct definition of action according to the book.

They had to read all of the first five questions before starting to answer any so that they could prepare themselves for the fifth question. My idea was to test expertise, not induce heart attacks.

Your Classroom

Building questions in this manner has the same benefit as quest chains. It's an excellent way to require students to see concepts in context and how, when they are strung together, they create a meaningful narrative. It occurs to me that this would work at any school age. You could evaluate retention in younger children by asking them to recap the story of Goldilocks and the Three Bears by repeating Goldilocks' crimes and misdemeanors. High school chemistry classes already do this when recreating experiments.

RPI SPRING 2014

Writing for Games I

This writing class was an upgrade of the game studio concept for the level design class in Spring 2013. The format for this class, a combination of the Spring 2012 class and the level design class went like this: "This class is entirely project oriented with student participation; multiple instructor and peer critiques; and revisions of work. The setting is a fictional game development studio. Students will apply for a job and (unlike the real world) everyone will be hired. Students will then collaborate and work to see their games ultimately added to the studio's development slate. Collaboration is necessary because ALL games must succeed for the studio to prosper." That last sentence is the most significant. Collaboration was not just emphasized over competition, as an experiment competition was removed completely. The class was entirely focused on the students helping one another to succeed. There was Bonus XP for Leadership and for the Entire Studio succeeding.

This change from the level design class was due to the fact that the writing concentration was still brand new, and not well publicized. Here were only eight students in this upper level class. The students wrote and wrote and then wrote again, beginning with inquiry letters, resumes, and portfolios of their work. They practiced pitching ideas and themselves. Several new concepts were introduced.

- Students were allowed to iterate their writing assignments based on instructor notes and turn in the revised assignment for additional XP. This was not awarded as much XP as the original draft since not as much work was required, but the ongoing give and take between instructor and student resulted in improved work and was much appreciated.

- Students were given an assignment to generate a good idea for a game and a bad idea. They had never been told before to create something that would not work. When these ideas were discussed in class, they discovered how the same idea could generate diametrically opposed opinions. Some good ideas were considered bad by others. Some bad ideas were considered good. They were able to apply this realization to put later critiques—as well as my critiques—in perspective.
- I also initiated a new system of granting XP in lower and lower amounts when assignments were late. Even if students were for whatever reason—like time management—unable to meet an initial deadline, this still gave them a chance to earn some XP based on how late the assignments were. Assignments were always due before the time class began. XP was reduced by 10% per day to zero if a full week late.

I continued to use all of these ideas in later classes.

Your Classroom

Allowing students to revise their work is an excellent practice. It goes beyond just giving them a grade and a few notes on their work. It gives them a deeper understanding of the lesson to be learned. It also enforces the fact that hope is not lost. When faced with a difficult task, they could try again. The assignment to create something based on a bad idea has important real-world ramifications. It can help students see both sides of issues and temper their own ideas that might otherwise be locked in stone. Giving students a chance to catch up, even with reduced XP, encouraged them to do the best they could even in less than ideal conditions. All good life lessons.

RPI FALL 2014

Character and Story for Games (Victorian London)

This class was the next iteration of the style of multiplayer classroom used in the two archipelago classes from Fall 2011 and Fall 2013.

There was a new method for distributing phat l00t that overcame some of the difficulty experienced in the Fall 2013 class. Thanks to a pretty decent artist named Leonardo da Vinci we were able to modify an outline sketch version of his Vitruvian Man. We passed out a copy to each student to record their various acquisitions of l00t and skillz. Some of the more popular rewards: “You discover an ancient tome,” (one incorrect answer on the midterm marked correct); “You learn to conjure a doppelganger of your avatar,” (get credit

for attending a class you actually missed); “You craft a healing potion,” (can resubmit one assignment for a new grade without penalty).

The fact that these skillz were actually useful made the attempt more successful than the last time I tried this particular extrinsic reward.

I also diagrammed guild movement from zone to zone (table to table) in the classroom. This helped me to better track students and learn their names faster.

For the Midterm Prep PvP I resurrected the open book competition from way back at Indiana University in the Spring of 2010 (Quest 4), but this class stayed with their first interpretation of the rules, so I confess I tweaked things so that guilds who got behind received easier questions to maintain a more forgiving level of competition.

The setting was new, no more islands: “The setting for the games you will create will be the same for each guild: Victorian London. No Steampunk, vampires, zombies, or alternate timelines! What will differ is the platform of the game each guild creates; the characters who inhabit the games; the stories those games tell; and the type of game.” The platforms remained the same from the earlier class.

One of the most innovative concepts was from The Guild of Extraordinary Gentlemen and Ladies for an amusement park ride through a creepy underground London where everything was upside down and populated by ghosts who supplied the narrative. Intended for teenagers or older each car could hold two riders like Disney’s Pirates of the Caribbean, although the two riders would be separated by a barrier. At a critical point in the ride the lights would go out and the two sides would split and head off on different rails. This was a wonderfully scary idea, possibly too scary!

RPI SPRING 2015

Video Game Level Design

I only have one observation about this class and that concerns the benefits of collaboration in class activities. It was a reworking of the Spring 2013 class. Collar City Entertainment was no more. Competition was significantly reduced in favor of collaboration and students mentoring one another. There was bonus XP for Leadership, but this turned out to not have as much effect as you might think on mentorship. Students helped each other because they were all working on a single project together, and for the intrinsic rewards of the relief and thanks they received from those they helped. There was such a variety of different talents in the class that almost everyone experienced both mentor and mentee sides of the experience.

This would be my last semester at RPI. I accepted an offer from Worcester Polytechnic University (WPI) and would be teaching there as a professor of practice in the fall.

QUEST 7 WALKTHROUGH

- Changing every multiplayer class you teach, either substantially or incrementally, will keep both your students and you engaged.
- Setting strict limits on an assignment forces more creativity from students than assignments that give them too much latitude. (Fundamental Concept Repeated!)
- Assigning different topics to different students in a class promotes learning both for the presenters and those they are presenting to. (Fundamental Concept)
- Don't fall victim to technology such as slide decks. Writing concepts down on the whiteboard is physical and immediate and leads to better comprehension and retention.
- Building questions in a sequence is, like quest chains, an excellent way to require students to see concepts in context and how, when they are strung together, they create a meaningful narrative.
- Allowing students to revise their submissions goes beyond just giving them a grade and a few notes on the top of a page. (Fundamental Concept)
- Consider teaching time management along with regular assignments either by giving students a collection of assignments and a several week span of time in which to complete them in any order, or giving XP for early submissions. (Fundamental Concept)

CASE STUDY 5

Azay-le-Rideau Rural Community School



Jean-Baptiste Brosset.

English as a Second Language Teacher

Azay-le-Rideau Rural Community School

Azay-le-Rideau, France

Introduction

I first discovered Lee Sheldon's concept of Multiplayer Classroom during the second year of my master's degree in Educational Sciences in 2013. At the time, the research I was conducting with apprentices and interns studying mechanics led me to reflect on the concepts of motivation and engagement. I wanted to conduct an experiment on game-based learning in experiential learning schools, and the principles developed in the book really made my "gamer sense" tingle.

The first experiment with vocational high school students was a success, which led to me being employed in a vocational school network called MFR,¹ which led to a second multiplayer classroom for ESL ninth graders. I was then asked by our National Educator and Teacher-training center, in partnership with the University of Lille, to lead an ESL course for teachers doing a master's degree in educational sciences, which, of course, I decided to turn in a Multiplayer Classroom once more. In 2017, as this course ended, the

¹ Stands for Maison Familiale Rurale (Literally: Rural Family Home, the standard translation we use is Rural community school).

vocational school in which I worked allowed me to introduce gaming in the classroom for the project-based course which takes over a quarter of our ninth graders' curriculum.

This is the most recent iteration of the multiplayer classrooms I have led, and though I am now a trainer for newly recruited teachers in our network for the National Educators and Teacher-training center, I know the course is still being taught that way.

Operating System and Requirements

An MFR always starts with the determination of families to change their living conditions, to increase their autonomy and give real answers to the questions about their children's future and the environment they live in.

Parents and local businesses join one another in a nonprofit organization called MFR. Together they form a board of directors that will lead the school. The board of directors meets regularly in order to ensure a smooth running of the association. Every 2–3 years, new members are elected from the pool of parents who have their kids in the school. The MFR in which this multiplayer classroom took place is in the center of France, right in the middle of the Loire Valley area and its castles, in a town called Azay-le-Rideau.

The instigators of MFR wanted a system that would allow training to be split between an internship and a period of study at MFR. The system is known nowadays as the alternate training system or sandwich training course. The MFR's ambition is not only to teach abilities and behavior but also at teaching what citizenship is and a sense of togetherness.

The Players

The group of forty students from eighth and ninth grade is the youngest in the school. They are students who most usually struggled in the traditional education system, had a hard time concentrating and finding meaning in the activities of a class. They tend to find the prospect of spending only half of the school year sitting in class very appealing, but often forget that the curriculum they must follow is the same as the one for traditional schools. This means that half of what they learn has to be discovered, observed, questioned, and experienced during the time they spend in internships and with their families at home.

They all must do three internships during the school year, each one spanning over a trimester. Eighth and ninth grades in France, especially in MFR, are called "orientation classes" in which the curriculum aims to help the students decide which courses and degrees they should take in high school (may that be vocational or traditional). The students of MFR are clearly focused on choosing a trade and a vocational school to attend after their ninth grade in MFR.

Project: Multiplayer

Before the Game

In 2016, the French Ministry of National Education established a new curriculum for ninth grade. Among other new measures, the curriculum defines a new project-based course and a set of eight skill groups to be mastered in order to graduate instead of obtaining a passing grade at a final exam.

The skills proved to be fairly similar to the previous ones in most subjects, except for the addition of soft and behavioral skills as the fifth skill group. Each skill group had to be assessed on four degrees of mastery throughout the year by teachers, but the text didn't mention any obligation for grades. In fact, in the new text, the government addresses the intention to make grades disappear from the curriculum.

I saw the opportunity to make the multiplayer classroom a major asset for the school at this point, it would be a very good way to tackle multiple issues at once:

- Assess student progression positively and without grades
- Encourage collaborative behaviors and self-development
- Help educators and teachers design activities focused on observable behaviors and not around—performance—tests and quizzes could hardly help us assess soft skill mastery.
- Create a fun and interactive environment for students, generating motivation and engagement in learning

With all this in mind, I set out to design “Project: Multiplayer,” a game aiming at developing and validating soft skills mastery by ninth graders.

Mechanics

The project-based course stretches through the whole school year and is set up to have the students work on seven different projects. The subjects are defined in the curriculum and span two to three school weeks or more each. The timing of the sandwich training course ensures the projects unfold over a month or so each time: 2–3 weeks in school for 2–3 weeks in the workplace.

Each project is called an adventure in the game. Each adventure has a theme and a tangible goal to attain. For example, the first adventure was themed “School Layout and Planning” and its goal was for the students to build comfort areas and amenities to improve the quality of life in the school. The second adventure was “Processing Agricultural Products” and

the goal was to organize a school event where students would bake and share bread with parents and educators.

Each adventure is introduced to the students during the last hour of the week prior to the week where it plays out. It contains a set of missions (quests) which are the activities in which the student will have to participate in order to attain the final goal of the adventure.

Every adventure contains at least three missions that translate key activities of the MFR's pedagogy:

- **A questioning mission:** The point of this activity is to end up with a series of questions about the theme that they will have to find the answer to during the investigation mission. In this mission, XP are attributed for every participation with diminishing returns in order to give everyone a chance to participate meaningfully. At the end of the activity, the class rearranges the suggested questions and tries to decide on ten or so questions to be investigated. For the whole activity, the teacher would never decide on the questions for them but instead let them choose whatever they wanted and needed to investigate.
- **An investigation mission:** With their set of questions in hand, the students went on to lead their individual investigations in the workplace or in their families. This mission never takes place at the school, so that the investigation can be based on real-life facts and exchanges. The mission requires that the questions must be asked of their workplace tutor or family members. The investigation mission sheet states that signing the paper gives the player the XP, effectively giving certification and education power to the tutor and family.
- **A group presentation mission:** Once the adventure is over, the last mission of the students for each adventure is to prepare a group presentation about jobs and careers linked to the theme.

These three missions are repeated for every adventure but are not the only ones that the students must complete. The other missions were presented as quest lines about certain aspects of the project, including team work, planning, problem-solving, etc.

For the first adventure, I introduced the students to fifteen missions which were designed in three quest lines. It might seem like a lot, but I wanted to make the steps very clear to them for this first try, so I divided the skills into achievable little steps (see Figure 7.1) to encourage the students and to develop their self-confidence according to the principles of the Theory of Self-Efficacy by Albert Bandura (1997).



FIGURE 7.1 Quest lines and missions for the first adventure.

As the adventures went by, I progressively reduced the number of missions and made them more ambitious (and more rewarding) to develop their ability to choose how to manage the activities.

Of course, each mission awards XP for a successful outcome. Depending on the mission, however, the points can be assigned in different ways: repeated with diminishing returns, peer-awarded XP, tutor or families awarded XP, etc. In class, there are two types of missions: those which award points for an observable behavior and those which award points for turning work in.

This meant that I was constantly observing what the students were doing to award them all the XP they got from an achieved mission, since they could be doing them at different paces and different times during the class.

Each student receives a copy of the mission sheets (see Figure 7.2) beginning the quest lines at the beginning of the adventure and advances through the quest line at his own pace.

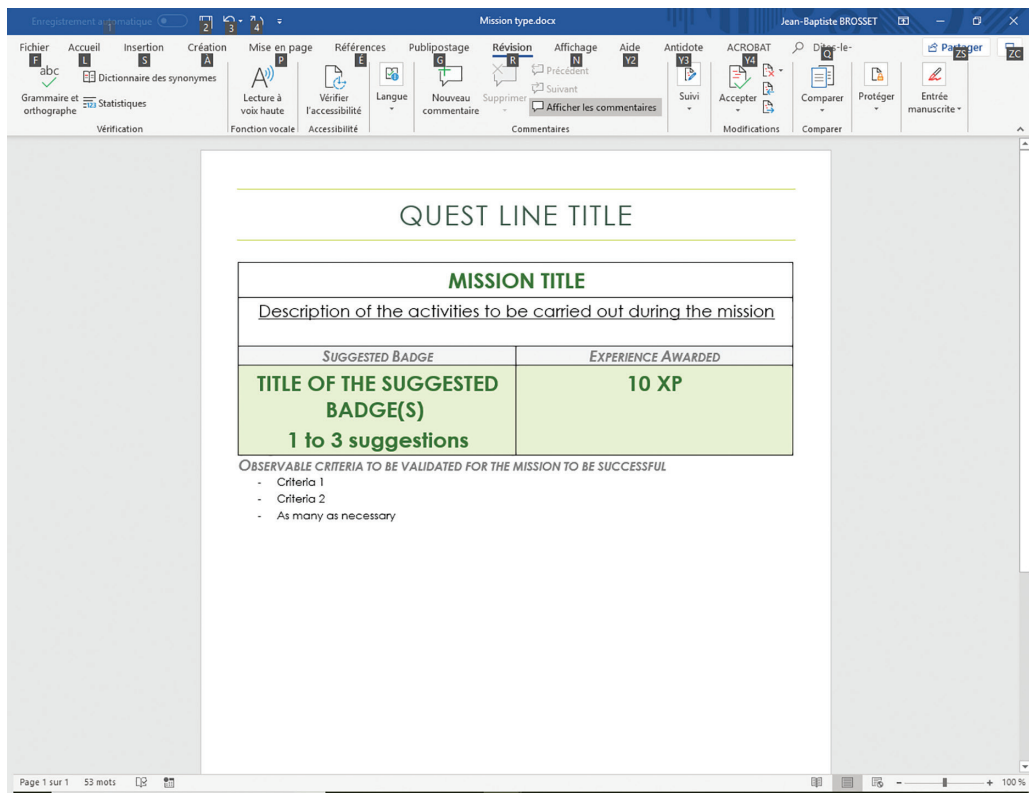


FIGURE 7.2 Mission sheet template.

The number of points awarded for the missions varies from ten to hundred XP mostly following the general rule of “hundred XP for an hour of activity.” This brings the total for a single adventure to somewhere between 2,100 and 3,000 XP.

Experience allowed them to level up following the table that was communicated to them at the beginning of the year (see Figure 7.3). Once again following Bandura’s principles (Bandura, 1997) I chose to make levels easily attainable at first to allow the student to have a lot of positive feedback in the beginning of their adventure.

After the first few hours of the project, they all leveled up quickly with each completed activity until level 3 or 4 when things began to take a little more time. They had got used to me shouting: “<Student’s Name> has gained a level!” in the class and eagerly worked to have their name shouted once more. Levels are a direct feedback of progression but have no impact on final grades.

In order to graduate students must achieve a certain level of mastery in eight different skill groups. The fifth of those groups is called “Personal and Civil Development” and contains soft skills and self-development. I created five badges related to this skill that they could progressively unlock and upgrade to four different stages.

Level	XP to next level	Total XP
1	99	99
2	198	297
3	297	594
4	396	990
5	495	1 485
6	594	2 079
7	693	2 772
8	792	3 564
9	891	4 455
10	990	5 445
11	1 089	6 534
12	1 188	7 722
13	1 287	9 009
14	1 386	10 395
15	1 485	11 880
16	1 584	13 464
17	1 683	15 147
18	1 782	16 929
19	1 881	18 810
20	1 980	20 790

FIGURE 7.3 Level progression.

The badges are as follows:

- **Processing information:** missions concerning creative and critical thinking would be associated to this badge
- **Self-control:** for missions with stress and emotional management
- **Others & Me:** for missions requiring empathy, self-consciousness, etc.
- **Communicator:** interpersonal relation abilities, meaningful and nonviolent communication, etc.
- **Problem solver:** decision-making, strategy, managing priorities, etc.

Each successful mission awards skill points to the students and suggested badges associated with them. The repeatable missions always award skill points, with no diminishing returns. I try to make them reflect on what skill they developed for each mission and what they did successfully or not before letting them decide where they want to spend their points. This provides a way to encourage reflexivity and metacognition.

The badges each have four unlockable stages at 10, 25, 40, and 50 skill points unlocking respectively Bronze, Silver, Gold, and Platinum badges. Those stages mirror the mastery levels described in the curriculum voted by the Ministry of National Education. The project-based course can give a maximum of fifty points for graduation. Students need to obtain 200 out of 400 points total over the eight skill sets² to graduate. Only one student managed to unlock all five badges. About 90% of the students unlocked all the Silver badges.

Feedback

At the end of the year, I asked the students and their parents to answer a quick survey about the course in order to adjust mechanics and the overall organization. Seventy-seven percent of them submitted an answer (ten XP were awarded for student and parent answers).

A vast majority of students enjoyed the course. They found it engaging and motivating, the objectives and expectations were clear, but most importantly they were all proud of what they had accomplished. They felt like they had the opportunity to participate in something meaningful in which they found their place and their opinion mattered, a valuable intrinsic reward.

What I consider a true success is that 100% of students involved their parents and tutors in the projects. They all accomplished 100% of investigation missions, sparking debate and

² The system voted by the ministry also includes a final exam for another 400 points max and other complications but I'm cutting it short.

dialogue about what they learned when they were at home or in the workplace. Parents felt that they had had an important role to play in their children's education, which is a key point of the pedagogy developed in MFR.

However, less than half of the students expressed difficulties in identifying the skills they had developed over the course, if any. Those who managed to identify them talked about team work, learning to learn, listening to others, and respect for others.

Some things still needed improvement in their opinion, such as the organization of the activities during class. They felt that being able to choose what activity they would do was difficult, and they wanted something more linear and directive.

Moreover, they felt that the time they had to build things in each project was short and that one educator or teacher for the group was not enough to handle all the explanations and guidance needed.

Conclusion

As of today, the multiplayer classroom is still being used to teach ninth graders. Since I am now employed elsewhere, my former colleagues have taken over the course. From time to time I still receive pictures of students building benches and bookshelves to improve the school, baking bread, and sharing it with parents.

The form of the classrooms was adjusted based on the students' feedback:

- The course now contains only five longer projects instead of seven, allowing teachers to spend more time on each one and get students to go further.
- The number of missions and required skill points was decreased to give some breathing room to teachers and not force them to spend all their time awarding points instead of working with students.
- Each adventure is led by two teachers instead of just one.

The development of an LMS or some other computer-assisted tools to help them easily award points is underway, but proves difficult as we want to integrate Open Badge³ technology to the system to validate skill mastery officially and make the system directly usable for future employment.

For my part, I am currently leading the ESL course for masters in Multimedia Learning Engineering starting September 2019 and I intend to do another multiplayer classroom, this time with a bit more fun and background story.

³ Open Badges are verifiable, portable digital badges with embedded metadata about skills and achievements. They comply with the Open Badges Specification and are shareable across the web. <https://openbadges.org/get-started/>.

WPI Writing for Games I

Characters (Valeria 2)

WORCESTER POLYTECHNIC INSTITUTE (WPI) and Rensselaer Polytechnic Institute (RPI) have much in common, but they are also very different in some fundamental ways. RPI's academic year is composed of two semesters. WPI's year is broken into four terms of 7 weeks each. There is a full week between the first and second term and the third and fourth.

WPI is also unique in another way. Its letter grades are A, B, C, and NR. There are no pluses or minuses. NR stands for Not Recorded. Instead of a failing grade, at any time during a term, a student may elect to receive an NR which means it is as if they had never taken the class. Instructors can also give students an NR if the grade is below a C.

Another quirk that has ramifications for both students and teachers is that officially there are no prerequisites for any class. A first-year student may choose a fourth-year class if they like. If they cannot achieve a passing grade, they can NR. However, teachers are able to suggest the most beneficial path to success. Classes like this one may be numbered and their descriptions may suggest prerequisites.

WPI has an extensive overseas program that provides learning opportunities all over the world for undergraduate students. I became involved in foreign outreach that resulted in a productive experiment with Professor Martin Hagvall at Skövde University in Sweden that we called the Global Classroom. Using communication technology and reciprocal teaching visits to both schools we combined three classes over 2 years where our students collaborated in international teams, each team composed of Skövde and WPI students. The experience was extremely challenging and rewarding, but it meant my second and third years at WPI contained several classes that could not be multiplayer classrooms.

Finally, one of my top priorities was helping to establish another writing for games concentration. This held much of my attention until it finally came into being in 2018. I am pleased to report that a third writing concentration has been recently established at Cogswell College in Silicon Valley by my friend Evan Skolnick.

My first two terms at WPI contained introductory undergraduate courses, The Game Development Process and Critical Studies in Games, plus a two-term graduate Game Design Studio. I followed the structure of previous classes taught by my colleagues to give me time to settle in and get used to my new school. In the first spring term I was ready to revisit Valeria.

WRITING FOR GAMES I: CHARACTERS (VALERIA 2)

Why the return trip to Valeria? I wanted to experiment with some new ideas and having familiar territory to build them on allowed me to concentrate on the new material. I retained the map of Valeria, making sure to credit its creation to the earlier class.

The Syllabus

The first thing I notice when I compare the two Valeria syllabi is that Objectives had now become Objectives & Topics and was far more detailed. I dropped all explanation of various game terms in the Format section. It was also more specific in setting up the world of the game/class and the students within it. Under Grading Procedure I dealt with the NR grade like this: “You must be at least Level Eight to pass this course. Level Seven and below will receive an NR, signifying that your time in Valeria will not be recorded by historians.”

The first assignment became a standard for me whenever students were required to obtain their own textbooks. Just as they can’t learn if they don’t come to class, they can’t read if they don’t have the book.

Your Classroom

Those of you who teach classes where students are responsible for acquiring their own books, even in the school’s bookstore, know there are always some who come to class the first day without them. If they have to order them, the books arrive even later, and the students are already falling behind. I assign meaningful homework, often reading assignments, the first day. In a 7-week term even a few days without a book can be a serious issue. Luckily, giving them XP just for having the book the first day works wonders. Of course, getting them to read it can be an issue! I’ve always thought the Clockwork Orange method of strapping somebody

in a chair with their eyelids stretched open with clamps was a splendid idea but have yet to give it a try. You might also give them XP for showing up properly dressed for decorum's sake or for the weather. The intrinsic rewards in the latter case are not getting soaked by the rain or catching a cold.

Let's compare the assignments in the first class (Quest 6) to the assignments here. In Quest 6 they were tied directly to learning, but not all were part of the world of the game.

- Solo: Create your level one avatar. (Written, 1 paragraph to 1 page, 50 pts.)
- Solo: Present your avatar to the class. (25 pts.)
- Guild: Present your avatars' home to the class. (25 pts.)
- Raid: Guild reading presentation (75 base pts. each person, one of these per guild)
- Pick-Up Group: Two-player reading presentation (150 base pts. each person, approx. one of eleven available, cannot team with fellow guild members) **OR**
- Solo: One-player reading presentation (150 base pts. but easier than above, one of two available)
- Developing clever strategies to defeat presentation mobs can increase XP gained by up to hundred additional pts. (See **Raid Strategies** below)
- Guild: Exploration of new zones. (50 pts. total, including final Guild vs. Guild PvP)
- Solo: Craft short report on *Senet* (Written, 3 pages, 75 pts.)
- Solo: Craft short analysis on board game of your choice (Written, 3 pages, 100 pts.)
- Solo: Craft analysis on video game of your choice (Written, 3 pages, 125 pts.)
- Solo: Defeat Five Random Mobs (five reading quizzes, 250 pts. total)
- Guild: Midterm Prep Guild vs. Guild PvP (50 pts.)
- Solo: Defeat Level Boss (Midterm Exam, 200 pts.)
- Guild: Paper Prototype (50 pts. each)
- Guild: Craft Final Project: Game Concept (Written, 30 pages, 250 pts.)
- Solo: Class attendance (280 XP total, 10 pts. per day of attendance)

- **Extra credit** for early completion of final concept document (10 pts. on Monday)
- Solo Farming: Glossary (**Extra credit**. 1 pt. per term added. 25 pts. cap per player. First come first served. Each mob only spawns once.)
- Group: Peer Review Secret Ballot (**Extra credit**. 0–100 possible XP as follows:
 - Guild Leader 100 pts.
 - Raid Leader 75 pts.
 - Solid Guild Crafter 50 pts.
 - Needs Rez 25 pts.
 - Leroy Jenkins 0 pts.

Raid Strategies

As noted above clever raid strategies can increase the amount of XP awarded for defeating presentation mobs. As in any MMO successful raids are built upon the attempts of others. Your basic slideshow presentation where you read off the bullet points like some tired professor will only qualify for the base number of XP. Other methods such as videos, contests, performances, and of course games are encouraged.

Here are the assignments for the new class.

- Solo: Have your book on the first day of class (5 pts.)
- Solo: Create your level one avatar. (Written, 2 pages single-spaced, following 3D Character template, 20 pts.)
- Solo: Introduce your avatar to the class. (10 pts.)
- Guild: Home Town NPC Search Description (Written, 1 page single-spaced, 10 pts.)
- Guild: Home Town Map & Search Presentation (1 slide, 5 pts.)
- Solo or Pick-Up Group: Course Textbook Reading Presentation (25 base pts.)
 - Developing clever strategies to defeat presentation mobs can increase XP gained by up to fifteen additional pts. (See **PvE Strategies** below)
- Guild: Midterm Prep Guild vs. Guild PvP (25 pts.)
- Solo: Defeat Boss Mob² (Midterm Exam, 50 pts.)
- Guild: Scouting. Observations of wildlife in its natural habitat (15 pts. total)

- Guild: Scouting Report (Written, 3 pages single-spaced, 30 pts.)
- Guild: Scouting Report Presentation (5 pts.)
- Solo: Analysis of Digital Character of your choice (Written, 1–2 pages single-spaced, following 3D Character template, 15 pts.)
- Solo: Digital Analysis Presentation (5 pts.)
- Guild: Orchestration of another guild’s avatars (Written, 1–2 pages single-spaced, 15 pts.)
- Guild: Orchestration Presentation (5 pts.)
- Solo: Dialogue on Passing the Rift (Written, 2–3 pages, screenplay format, 15 pts.)
- Solo: Dialogue Reading (5 pts.)
- Solo: Final Character Stories (Written, 5 pages, 40 pts.)
- Solo: Final Character Story Presentation (5 pts.)
- Solo: Class Attendance (30 XP total, 2 pts. per day of attendance)
- Guild: Peer Review Secret Ballot (**Extra credit.** 0–20 possible XP as follows:
 - Guild Leader 20 pts.
 - Raid Leader 15 pts.
 - Solid Guild Crafter 10 pts.
 - Needs Rez 5 pts.
 - Leeroy Jenkins 0 pts.

Grading is rigorous. Spelling, grammar, and punctuation must be proofed. Total XP will suffer otherwise.

If the Boss Mob defeats you, you will be able to repair your weapons and armor and try the battle again, but your total possible XP will be reduced with each attempt: second attempt total is 42 pts. Third attempt total is 37 pts. Alas, a fourth attempt is not possible.

The PvE Strategies section of the syllabus mentioned above is identical to the Raid Strategies section from the earlier class with this more specific addition: “Additional XP will be awarded as follows: Clarity 5 pts., Inventiveness 5 pts., Success 5 pts. Success will be determined by questions on the presentation answered by the five other guilds.” I’m pleased to report that with this iteration there were no boring slideshows with black bullet points

on white backgrounds. (Although one guild did start their presentation with white bullet points on a black background. Grumble.)

Your Classroom

This rule holds true for whatever subject you are teaching. If you use narrative, then try to ensure that as much of the gameplay and the material being learned as possible are presented as part of the story.

As I had earlier given students a chance to hand in assignments late with a sliding reduction in XP, I now wanted to give them a chance to retake the exam in the same manner. I did not change a single question. They were given their first attempt as a study guide. Only a few have found it necessary to retake the exam. No student has decided to retake the exam more than once.

Your Classroom

I don't change questions or reorder them or anything for retakes. The idea is not to trick students after all, but to teach them. Giving them a chance to study the questions they missed helps reinforce study habits as well as the subject matter they need to learn.

As for the reading presentations, I added a third category to the grades for Clarity and Inventiveness. I called this one Success and under PvE Strategies provided this explanation: "Success will be determined by questions on the presentation answered by the five other guilds." After a presentation was over, I quizzed those guilds. The presenter or presenters got XP for every question the other guilds got right.

Your Classroom

Since then I've asked my colleagues, and some teachers of younger students, if they check student learning on the spot like this. Some do. It's mostly to find out if concepts they are teaching have been understood. This usually takes the form of a question directed to the class in general, and no grades are given. Adding a few XP as an extrinsic reward to the presenters encourages them to try to be clear. They must fully understand the concepts they're teaching, another benefit. The students

in the rest of the class like helping them out, an intrinsic reward, even if they hope it will be reciprocated when they have to present. This motivated them to listen and try to understand the presentations.

CLASS

The same number of students took both classes: 23. One of the hurdles I always face when I divide my classes into guilds is dealing with prime numbers. Twenty three is a terrible number and should be banned. One guild is always unnecessarily punished by being one member less than the others. Okay, actually it always seems to work out. No one has complained about being in the smaller guild. The homes of the guilds and the NPC they traveled with were the same as in the first class except I changed Medea, admittedly borrowed from an earlier writer, to Metea.

As before the narrative of the class was a quest to accompany NPCs to the final destination, now called the Hexagon. PowerPoint was used to convey messages from the Hexagon, the new incarnation of the previous tower. It was no coincidence that the Hexagon had six sides, one for each guild.

Whereas in the first Valeria I tried to keep the students securely on message and not veer too far from the narrative I had designed, I went out of my way in Valeria 2 to incorporate as many original ideas from the students as I could. This was an exciting challenge, but worth it. The first batch of students was extremely engaged. If possible, these new students were more so. When introducing their avatars many dressed the part. One student's avatar in particular did not derive from the world of the game. This was Pepe the Frog, a character from a comic by Matt Furie that became an internet meme that caused an uproar when Pepe was seized by the alt-right movement as a symbol. A battle ensued to try to protect Pepe from the extremist group who used him as an emblem of hate. This Pepe was thankfully the Pepe from the original meme. The student came to class on the day avatars were introduced dressed as a green frog.

Pepe, as anachronistic as he may have been, became a significant character in the story. When Asha, the shape-changer was critically injured in the battle with the Frost Dragon (the midterm exam) each member of every guild voted on how much of the creature's magical blood they would give to save her. Pepe chose to give all his blood and die, creating an interesting challenge for me. Luckily another evil character was a necromancer. I had him revive Pepe as an undead green frog. Pepe, now evil and knowing the plans of the questors, led the minions of darkness in pursuit of them.

We weren't done with Pepe yet. Each side of the Hexagon held a doorway guarded by one of the six evil characters. Each was defeated in a variety of ways. Pepe, to his credit,

fought off the necromancer's influence and saved his guildmates. This ending in general was very different from the construction of the tower end-game sequence in the first class, and more successful as a narrative device. Building the last level of the game brought that first class down firmly on the side of designers instead of players. This new ending was a true culmination of the player journey.

There was one unfortunate issue in the class. Remember when I compared the usefulness of various classroom setups? Valeria 2's classroom was a small lecture hall tiered with permanent desks that sat four or five students with a central aisle ascending between them. This was fine for many classes and much of what this class required, but the mid-term prep was a guild PvP. The rules were not only way too complicated, there were 22 of them! I had not thought to send the rules to guilds in advance, so I was stuck reading them aloud and interpreting them eating up precious time. The biggest disaster was caused by rule number 8:

8. Guilds signal their desire to answer the question by their Crier shouting out the number of their guild:

Deserted Desert Desserters = 1

Order of Myrish = 2

Monocle Emporium = 3

Treacherous Pass = 4

Moscato Mosquitos = 5

Equoriba = 6

The guild crier who shouts first wins the opportunity to answer the question. No other guild member may shout out the number.

The seating in the room put some guilds upfront and others behind them. The guilds in front had an advantage at being heard over the others, so if the shouts were close enough to one another neither I nor my student assistant could be sure who had won the chance to answer the question. Added to that there was no rule against shouting loudly or making other noise to make it harder to determine who won the right to answer a question, so I had to curtail that on the fly. For once emergent behavior that I usually encouraged was a disaster. Chaos ruled for much of the session.

Two bright spots were that we did make it through and the average grade on the exam was an A. The real bright spot for me however was the visitor we had that day: Tracy Fullerton, director of the University of Southern California Game Innovation Lab, until

recently chair of School of Cinematic Arts Interactive Media & Games Division and the creative force behind the wonderful video game *Walden*. Tracy appeared as a character in the game narrative, Cravia Pattermouse, the foremost purveyor of tropical fish in Valeria and a witness to the ferocious beast the students would be facing in the midterm exam. She was also very diplomatic about the midterm prep game!

I try to always host a postmortem of my classes so I can learn from the students what they felt worked and what didn't. Needless to say, there was almost a universal agreement that the midterm prep was a low point, but the resurrection of Pepe the Frog was a definite highlight.

Your Classroom

No one expects the Spanish Inquisition! However much you prepare you will never be able to anticipate every turn your multiplayer classroom might take. The trick is to treat surprises as opportunities, especially if the surprises come from the students. Nothing is more engaging for a gamer than seeing their desire to leave their personal mark on the game world fulfilled. Then it becomes not only your world, but theirs.

QUEST 8 WALKTHROUGH

- Many schools will have different systems like limited grades or no grades at all. The great thing about intrinsic rewards is that they are separate from extrinsic grading systems and can flourish independently.
- Give a few XP for students bringing books or other required supplies they might overlook to class, or other appropriate behavior. (Fundamental Concept)
- If you allow students to retake an exam, don't alter the questions or try to trick them. Give them a chance to study the questions they missed and learn from their mistakes. Seeing a question for a second time and knowing the answer reinforces the subject matter, gives students an intrinsic sense of relief, and means less work for you. (Fundamental Concept)
- Adding a few XP as an extrinsic reward to the presenters encourages them to try to be clear.
- The students in the rest of the class like helping the presenters out, an intrinsic reward, even if they hope it will be reciprocated when they have to present. And this motivates them to listen and try to understand the presentations.
- Flexibility can be challenging at times, but try to treat surprises as opportunities, especially if the surprises come from the students. (Fundamental Concept)

CASE STUDY 6

Valentine High School



Melissa Pilakowski.

Applied Communications Teacher

Valentine High School

Valentine, Nebraska

Melissa highlights several important ideas. The first is collaboration and socialization. Making sure all students share game experiences with one another increases the chance for intrinsic rewards. Second is offering players choices. Giving players even limited choices allows them to feel in control. Bad game design and bad multiplayer classroom design ignores the power of player choice. The third is providing students with the opportunity to design their own games even when the class is not about game design. I especially like the fact that Melissa's later classes can play games designed by their predecessors. The last idea is adding narrative as in her example of the mystery box used to teach *Macbeth*. Narrative does not have to be as extensive as *War and Peace* to have an impact.

Introduction

Looking for a way to improve instruction and make it more engaging, I started researching game-based learning in the spring of 2015. I watched every webinar and read every white paper and book that covered the topic, including Lee Sheldon's *The Multiplayer Classroom* (2012). Later that spring, I set up a pilot program of game-based learning, and that's where all my learning about these classrooms began.

My pilot game-based experience was with my two Applied Communications classes, which were composed of twelfth grade students who were not planning to enter a 4-year college but rather planned to attend a 2-year school, enroll in the military, or join the work

world following graduation. My school, Valentine High School in Valentine, Nebraska, is a small, rural high school of approximately 200 students in grades 9–12. It's quite isolated geographically; the nearest town of over 20,000 people is 120 miles away. The students in my Applied Communications class varied greatly, from experienced gamers who spent several hours a day playing video games to students who worked several hours per day on their family's ranches and did not play games often.

What I Learned from Early Iterations

In this first iteration of game-based learning, I used the online program 3D Game Lab (now Rezzly) to create a quest-based system of learning tasks for students to work through. The system allowed students to create their own gamer names, upload images for their avatars, earn points for their work, and win badges for accomplishments.

The results of the unit were mixed. On one hand, students enjoyed moving at their own pace through learning tasks. After the novelty of the new learning program wore off, however, students were no longer interested in the points or badges. In fact, one student remarked, "You said this would be like a game. It's nothing like a game."

This was something I hadn't anticipated. I'd expected all students to be engaged and excited with my game-based unit design, but this pilot experience taught me I needed more. After receiving feedback from my students and reflecting on my own observations, I realized I was missing some critical game mechanics:

- **Collaboration and socialization.** My unit design had no options for collaboration or socialization. Even though they worked in the same room, my students were all isolated on their own devices. I needed to include opportunities in my lessons or within my games for those students who sought socialization.
- **Choice.** Only one of my assignments in my pilot unit gave my students a choice of task, as opposed to games, where choice is a vital component. Rather than letting them choose different forms of assessment or routes of interest, I gave them the same assignments I'd used the year before. In the end, they all received the same test as assessment. If I wanted a game-based experience, I needed to include choice.
- **Learning through games.** The lessons and assignments I gave students weren't innovative. The unit didn't include any actual games or activities that encouraged students to *play, fail, and iterate* until they succeeded. I realized I needed to take a deeper look at my curriculum and include more gameful experiences as a way to learn, not as a reward for learning.

In the next school year, I strove to include these mechanics. First, I adopted the use of another online program, Classcraft, to group students into teams where they could use powers that benefited their groups. I also encouraged students to work in pairs during class (Figure 8.1).

Second, I included some form of choice in every assignment. Sometimes the choice was in the text students read; sometimes the choice could be in how they responded to the text, such as through a written summary or a video reflection on Flipgrid. Finally, I added more games to encourage learning. I started with Apples to Apples to learn vocabulary words and online student response games, such as Kahoot and Socrative's Space Race, to review content for tests. As time went on, I created my own games, such as Vocabulary Dominoes (Figure 8.2) and hosted in-class game jams for students to create their own games.

After adjusting my curriculum for more social opportunities, choice, and learning through games, I implemented game-based learning across all my classes the following fall. These classes included British Literature, composed of eleventh and twelfth grade



FIGURE 8.1 Students collaborate to solve a business letter puzzle.



FIGURE 8.2 Vocabulary Dominoes.

students, and College Composition, composed of college-bound twelfth grade students (most of whom were seeking dual college credit through the class).

I also used Classcraft as a platform for our game-based classroom. Students are able to choose avatars from the categories of Warrior, Mage, or Healer; train their pets to earn gold; and use gold and XP to purchase new armor and weapons for their avatars. The platform

allows users to group students into teams, who can then use their powers to help fellow teammates. The Classcraft system encourages collaboration and critical thinking among team members to protect each other from attacks or disasters that occur from the website’s “Random Events” function.

However, I also learned from this pilot experience that online platforms alone won’t transform a classroom into a powerful game-based learning culture. Simply layering badges and a leaderboard over a traditional curriculum is just a deceptive cover to the old game of school. Instead, I learned through this experience that we need to look at *why* we play games—for social connection, for the challenge, and for the emotional experience—and include these elements into our classrooms. Over the years, I continue to iterate my lesson design and classroom activities to improve team and class culture, include student choice, and improve learning through gameplay.

Socialization through Team Building

My first priority of every school year is to build the culture of our class, and team building is a key way I do this. For the first week, I observe how the students work together in our class activities and get a feel for their personalities. They also create “superhero learner profiles” that further informs me about their personalities, strengths, and weaknesses.

Using these learner profiles, I group students into teams. I strive to create teams that would have equal opportunity to compete in class games as well as collaborate on assignments. As a team, students then compete in a variety of activities. First, teams select a name and design a banner, logo, and motto that represents their team. I’ve also had teams build their own fortresses instead of banners using wooden blocks and art supplies (Figure 8.3).

Students also participate in the Marshmallow Challenge, where they work together to create the tallest freestanding structure with twenty sticks of spaghetti, a yard of string and tape, and a marshmallow on top. Afterward, they reflect on how their team worked together and where they could improve.

Every 1–2 weeks, teams also compete in our Couch Competition, where the winning team earns the right to sit on our classroom couch for the following week. These competitions are often content based, such as a vocabulary game, but they are sometimes physical challenges or mental brain teasers. Couch Competitions further build the bonds of team members.

Teams also compete in a semester-long competition for the title of Team Champion. As students complete assignments, finish daily vocabulary challenges, or receive recognition from other classmates for high quality work, they earn XP. I combine the XP of all team members to determine their team ranking. The championship team is commemorated on a vinyl banner that hangs in our classroom, thus giving students and teams a chance to leave their legacy. I’ve found this promotes healthy and fun competition between teams, rather



FIGURE 8.3 A team working on fortress building.

than individuals, avoiding the negative feelings that sometimes arise on leaderboards that promote only individuals.

Choice

Teaching English/Language Arts naturally provides plenty of opportunities for student choice. Students choose the books they want to read for the first 10 minutes of the class period. In most writing assignments, I choose the genre (argument, narrative, etc.), but students choose the topic. For vocabulary, students who can show mastery of twelve core words of the month can choose some of the challenge words to include in their study lists, and in grammar instruction, students select the paths of learning based on what they personally need to improve.

I also embed choice in other areas of class. Students choose where they sit, whether it be at a table, in a “moon” chair, or on the floor. I often utilize the flex learning approach as well. I provide a set of activities for students, along with a deadline, and they have the choice in the order and the pace they accomplish these activities. Choice also extends to tech tools. When students recorded children’s books, they could choose the recording app they wanted rather than being forced to use the app I was most comfortable with.

Choice is vital for an effective game because the player is the one with control. Similarly, choice is vital in not just game-based classrooms but any student-centered classroom where we want students to have ownership and passion about what they're learning.

Learning through Games

Through my game-based classroom experience, I've also discovered the power of using games as a form of learning content. For years, teachers have played forms of Jeopardy or trashcan basketball with students as a form of test review. However, these games only scratch the surface of how students can learn through games.

For example, argumentation is a core objective in my curriculum. I use tabletop games such as Superfight and Master Debaters to help students develop claims, show evidence, and deliver reasons for their arguments. Even basic questioning games such as Would You Rather can provide a simple yet engaging gateway into argumentation practice. Other games, such as Snake Oil and Silicon Valley Startups, help students improve their public speaking through giving pitches for wacky products. Here students play Jenga Poetry (Figure 8.4).

Integrating student teams into a game narrative has also increased engagement in my classroom. Before we begin reading Macbeth, student teams are magically transformed



FIGURE 8.4 Jenga Poetry.

into archaeologists who have discovered mysterious boxes containing articles found in the play. The mystery box includes a (cheap) crown, an image of bloody daggers, a map of Scotland, a letter from Macbeth to his wife, and a hierarchy of the royal lineage during the play. Knowing nothing about the story, students have to work together to analyze the artifacts and make predictions about the play.

Perhaps the greatest learning happens when students create their own games. During “game jams,” I give students certain constraints for their game, such as the content of the game and the materials they’re allowed to use. When my College Composition class studies fallacies, they’re given a set of cards with examples of advertisements or quotations that represent a type of fallacy. Each team then creates a game that uses this set of cards. Over the years, students have created a vast variety of games; a single class may have a board game designed by one team, a Go-Fish game by another team, and a Hed-Banz game from a third team. The last day of our game jam activity is reserved for students to play games designed by other teams. Not only do students better learn the different types of fallacies, but they also have a better grasp of design thinking.

Conclusion

Every year, I continue to rethink and revamp my game-based classroom. This year I want to add more meaningful incentives to teams, so I plan to give a donation to a charity selected by the winning team of that month. I also continue to find and create games and gameful activities that will deepen my students’ learning experience. A new addition to my eleventh grade curriculum is adding the digital games of *Walden* and *Her Story* to enrich student understanding of Thoreau and unreliable narrators, respectively. However, the core components of team building, student choice, and learning through games will always remain the same year in and year out.



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WPI Writing Characters for Interactive Media & Games (Sanctuary of the Sun)

THIS IS THE LAST of my multiplayer classes to be discussed in this book. It represents all of my earliest thinking as well as my more recent experiments adding narrative to gameplay. From the beginning I have emphasized that the cost of a multiplayer classroom is in your hands. This class costs nothing to design. Teachers with no money to spend on software or no access to the internet or computers can design a multiplayer classroom. While I have also emphasized that a multiplayer classroom does not need any technology whatsoever, I have used the technology at my disposal. (That I felt capable of using!) As with the Valeria classes I relied heavily on PowerPoint and Photoshop for much of the narrative, the gameplay and the structure of the learning. The text messages and other PowerPoint slides of locations, characters, and other gameplay are replaced in this quest by plain text. Most images were constructed and combined from multiple Internet sources which is the reason I cannot reproduce them here.

Worcester's daily newspaper, the Worcester Telegram & Gazette, published a story on the class and took a number of pictures. You can read their take on the class and see the photographs here: www.telegram.com/news/20171009/wpi-professor-turns-class-into-interactive-game.

SYLLABUS

Although the format will again be familiar there are again differences that are important as well. Along with Writing Skills and Topics, Professional Skills was added under Objectives & Topics:

- Professional skills:
 - Inquiry Letter/Résumé/Portfolio
 - Team structure and dynamics
 - Personal pitching
 - Presentations

I had taught the first group of essential skills, Inquiry Letter/Résumé/Portfolio, before, but had never found a way to integrate them into the narrative or gameplay of a multiplayer classroom. In this class I found a way. Team structure and dynamics were already being taught in the guild system. Personal pitching occurred when avatars were introduced and of course there were many presentations. But I wanted to explicitly identify these skills as learning objectives for the class.

Your Classroom

Too often I find we teachers focus on the important subject matter often identified in the class title but neglect supportive skills that are equally important to career success. Job applicants stand little chance of standing out from the crowd of candidates if they lack knowledge in writing inquiry letters; resumes with a proper level of information; and professionally designed portfolios if they are required to show their work. I try to find the time to incorporate all of these, including practicing job interviews with me as the interviewer and students as applicants.

After Objectives & Topics, there was a big change where format used to be. I had touched on the worlds where students would find themselves such as Valeria, Victorian London, and the Archipelago, but I wanted players of this game to recognize what a full-fledged narrative experience it would be. I replaced the word Format with a candid picture of Plato, his quote that I used earlier in this book and the title of the story: *Sanctuary of the Sun*.

Sanctuary of the Sun

In [Egypt] arithmetical games have been invented for the use of mere children, which they learn as a pleasure and amusement.

Plato 360 BC.

This class is designed as a multiplayer adventure game. You are the players. You will join a team of fellow adventurers in the jungle of Costa Niebla in Central America. Here on the slopes of La Montaña del Juegos (Figure 9.1), a forbidding mountain shrouded in myth, remnants of an ancient civilization have recently been discovered.

First you will each create an avatar who will represent you in the game and apply for employment with one of the three possible employers with different interests in the ruins: government, academic, and corporate. They have been granted permission to explore the ruins and learn what they can of the previously unknown civilization.

Each of the interests who have hired you have their own secret agendas and there are additional forces vying to stop your mission. The government is in danger of being overthrown any day. The academic team must maintain its scientific credibility in the face of revelations about its supervisor manufacturing artifacts to prove her theories. And the corporate masters of the third team are interested only in riches, not science.



FIGURE 9.1 La Montaña del Juegos.

This lost civilization will not give up its secrets easily either. You will encounter puzzles, traps, and pitfalls that will test your knowledge and your courage. The jungle is unforgiving, and loss of life is a stark possibility. The local laborers necessary to your success may have their own surprises for you. Even as your employers bicker and compete, your team will have to collaborate with the other teams and to acquire knowledge you will need not just to succeed, but to survive the *Sanctuary of the Sun*.

You will have several expert NPC adventurers working with you: an archeologist, a cryptographer, a historian, an engineer, a naturalist, a geologist. They are all necessary to your success. They are already hard at work at the site. The entire operation is coordinated by with the aid of a paleographer named Prof. Sheldon and his resourceful assistant, Leo.

But why you? You're not scientists. You're gamers! That question will be answered for you once you are ready to leave for La Montaña del Juegos.

The Grading Procedure section and Level Guides section remained basically the same, but the assignments, even the textbook, were now entirely integrated into the narrative. The inquiry letter, résumé, and portfolio were all about a player's avatar. Those avatars would be applying to the three entities who had permission to explore the ruins: Northeastern Polytechnic Institute (a reputable academic institution), ViroSci (a large high-tech company founded by a cutthroat entrepreneur) and the government of Costa Niebla itself.

Career Fair!

Employment Possibilities:

Costa Niebla (Government)

This Central American country enjoys a warm climate, beautiful scenery, and a stable democratic government.

Northeast Polytechnic Institute (Academic)

This highly regarded university has received a research grant to study the ruins of unknown origin recently discovered in Costa Niebla.

ViroSci (Corporate)

Founded by charismatic entrepreneur Alex Centime, this fast-growing technology giant specializes in turning scientific discoveries into profits.

Once the teams were hired, each of the three employers (Julio Alvarez, an official of the Costa Niebla government; Liz Correll, an ambitious academic; and Alex Centime, the wealthy entrepreneur) contacted them privately through emails and texts displayed

in slides. This set up the competitive aspect of the game. Each team had its own agenda. Each was given information the other two did not have. Each class featured a discussion where the teams could share or withhold information from the others as they chose.

I had used two methods in the past for delivering information to select subsets of classes: having most of the class troop outside into the hall while one guild or team received their message (too cumbersome!) and asking other teams to put their heads down on their desks so they couldn't see the message. This worked remarkably well with no cheating. Teams took pictures of their slides and as in earlier classes all messages were also delivered to the teams' online folders in our LMS, in this case Canvas.

Your Classroom

I'm not certain how effective my chosen method of maintaining secrets by heads on desks would be for younger students who might not be able to resist taking a peek...

A research paper on ancient Mesoamerican cultures and their games also speculated on which one may have built the structures on La Montaña del Juegos.

Players individually wrote character descriptions of the experts and from those personalities of the six NPCs and their roles (archeologist, historian, geologist, naturalist, cryptologist, and engineer) were created. Players could choose to consult three of the six at certain specific places during their exploration of three tunnels found beneath the ruins. I found images on the internet to represent each character. It was important to make these characters as engaging as possible. While the player avatars could not be harmed, the lives of these six NPCs were in the players' hands. They would encounter nine doors fashioned from huge blocks of gemstones. The experts could speculate on these, but the players were tasked with solving the puzzles that opened each door. These were related directly to their reading assignments in the textbook.

How was the textbook a part of the story? The introductory slide deck, again with appropriate pictures found on the internet, sets the stage for the adventure. The first slide gave the full title of the game: *Sanctuary of the Sun: The Riddle of a Lost Civilization and the Intrepid Adventurers Who Solved It*. The second and third slides informed players that a stone cache had been found in the 1920s with an ancient book in an unknown language inside that was now in the Museo Nacional de Antropología in Mexico City. The third slide revealed that a controversial recent translation of that book by a professor with a questionable reputation (yours truly) had been written and might contain clues to what players might find in the three tunnels (Figure 9.2).

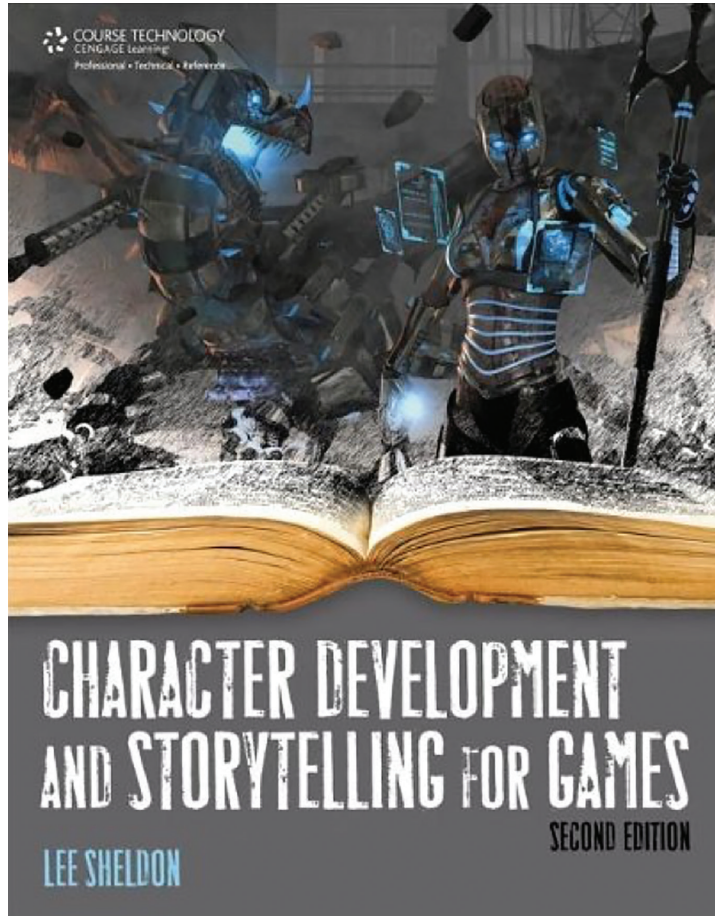


FIGURE 9.2 A doubtful translation by a dubious professor.

Your Classroom

Any subject matter I've encountered that requires reading as a part of the learning experience can integrate the subject matter into the narrative and the gameplay. It is not enough to place a digital version of the textbook into the nicely rendered game space, then require players to read it. I ran into this in a video game teaching statistics that I consulted on, but I was too late to do much good. Another video game I consulted on taught algebra. There I had enough time to create a decent narrative

and integrate the lessons into it, although players were still stuck with equations popping up in text boxes that looked quite like what a student would find in a bound copy of a math book. Try to move the lesson as far into the world of the game. If it's a geography game, let Carmen SanDiego be your guide. If it's a history game let students find ancient texts and artifacts. A plot device used in countless media is an old grievance or curse or the discovery of a new Macguffin that can greatly impact today are all good, as is letting students take on roles in ancient cultures.

MACGUFFIN

A word coined by screenwriter Angus MacPhail and popularized by director Alfred Hitchcock to explain the reason for all the running around in his films: the unimportant “thing” that characters try to possess, such as the microfilm in *North by Northwest*, the black sand in the champagne bottle in *Notorious*, the tune in *The Lady Vanishes* or the “great whatsit” in the film *Kiss Me Deadly* written by Robert Aldrich and A.I. Bezzerides to name a handful. In *Ronan*, a film written by David Mamet, the audience never learns what was in the briefcase that caused such mayhem all over France.

This way of using the textbook as part of the game was met with amused acceptance.

For the first time I totally scrapped having students present the reading. Instead they presented their writing assignments prompted by certain “unforeseen events” that would plague teams as their experts explored the tunnels:

- **A Boulder of Unusual Size!**

Solo: Ignis will not outrun the boulder alone. Save him by orchestrating another team's avatars.

- **Arrow Trap!**

Solo: To prevent Kazuhiro from being turned into a colander by the clichéd arrow trap write dialogue where your team speculates on why the lost civilization became a civilization that revered games.

- **Cave-In!**

Team: To rescue Kazuhiro, Ignis, and Penelope from the cave-in, members of your team will need to write a one-page synopsis of a previous adventure that you were told around the campfire by each of the six expert adventurers.



FIGURE 9.3 Expert Health Bar.

XP totals from the writing determined the fate of the experts who found themselves in danger. Video game-style health bars measured the extent of their injuries (Figure 9.3).

Short reports indicated how long it would take for an expert to recover. If an expert was too injured, their expertise was unavailable for a certain period of time:

- **Fate of Mel**

Mel managed to duck into a side tunnel, the boulder barely missing her, and she is okay. She will be able to adventure onwards whenever called upon.

- **Fate of Sandhana**

Sandhana took an arrow to the knee. She won't be able to soldier on until next week.

- **Fate of Dylan**

Dylan was punctured rather badly. He won't be able to adventure on again until next week.

Reading the textbook was obviously still very important. The puzzles that opened the gemstone doors were based on it. All teams had to answer six questions correctly to discover the sequence six stone keys were inserted in slots that would open the door. Each member of a team was required to answer a question that was part of the puzzle. If a team could not answer a question, other teams were allowed to help them. Failure to answer questions caused enough embarrassment the first couple of times it happened that after that everyone did their reading. Once the stone keys were all inserted in a door a hieroglyphic clue to the origin of the ruins would be revealed. I'm indebted to the website LingoJam (<https://lingojam.com/HieroglyphicsTranslator>), which "translates" English words into Egyptian hieroglyphics.

Gameplay proceeded like this: Each of the three teams entered the mountain through a different tunnel. The gemstone doors that barred their way each week were identical in each tunnel, so that all teams could share their knowledge gleaned from the reading. Each team would have a chance to consult one of the six experts to learn information, and hear theories, about the mysteries the players confronted on La Montaña del Juegos. This information was shared with all teams. Once a door was opened, the experts would enter the next section of tunnel where the “unforeseen events,” traps and deadly creatures, would trigger writing assignments. The XP earned on those determined the fate of the experts.

Messages from the three employers usually occurred after a significant incident in the narrative on a slide titled Breaking News! This happened when the ancient book was stolen from the museum in Mexico City. Near the end of the term a major unforeseen event that affected all teams occurred. Costa Niebla’s government was taken over by a military dictator who wanted to expel all foreigners from the country.

Breaking News!

The democratic government of Costa Niebla has fallen. This morning elements of the army led by General Naranja seized control of the houses of parliament in Santa Carlotta, airports, other coastal cities, and major radio stations. Naranja has claimed total control in what is a thinly disguised dictatorship enforced by armed troops loyal to the general. It is uncertain what this will mean for citizens of other countries trapped within Costa Niebla’s borders. Naranja has consistently spoken out against what he calls “foreign invaders” he has accused of stealing billions of dollars from the country. He has threatened to imprison all foreigners until their countries return stolen funds. Essentially, he has kidnapped hundreds of people and is demanding ransom.

Messages from the three teams’ employers followed:

Email from Dr Liz Correll

I am, of course, very distressed to hear of the situation in Costa Niebla. But I’m sure you are in no danger up there on that mountain in the middle of nowhere. Why would General Whatever-His-Name-Is trek all the way up there, when there are plenty of foreigners in what pass for cities in Costa Niebla. I’m probably in more danger down here in this village than you are. So I’ve hired a guide to get me across the border to Nicaragua. You must not think I’m abandoning you. Once I’m safe, I’ll monitor the situation carefully. Continue with your work. My research must proceed whether this second-rate country can sort out its political differences or not.

Email from Julio Alvarez

My friends, by now you will have heard the news of General Naranja's illegal coup. Most of the duly elected government of Costa Niebla have been taken prisoner. I managed to escape due to a meeting I was attending in Honduras. Although I am only the Minister of Antiquities, I have been asked to assume leadership of the government in exile. I will do what I can to ensure all foreign nationals in Costa Niebla are unharmed, but it is impossible to guarantee your safety. Your isolated position should keep you safe for a little while, as Naranja rounds up foreigners in the cities and populated countryside. But I suspect you have no more than a week, possibly less, before they come for you. Use your time well. I will pray for all of us.

Series of Tweets

Alex Centime Naranja has made good on his threats. We've received the news that he's now arresting anyone who is not a citizen of Costa Niebla.

- I've dealt with him before. He understands the power of a dollar.
- But if he wants to play hardball, I can send in some badass mercenaries to protect you until your job is done.
- I promise you they're better-paid, better-equipped, and better-looking than any soldiers Naranja can get up there.
- I do have to watch expenses, so I'm afraid the other teams are on their own.

The players had to choose what of their employer messages to disclose, what to keep secret, and what to lie about.

Finally, with time—and the 7-week term—running out, all the teams breached the final door in each tunnel and the secret of La Montaña del Juegos was revealed. Something I'm not about to do here.

It's important to note that there was no final exam or huge writing assignment granting a large block of XP. This meant the XP accumulated in a much more rational manner from assignment to assignment. I received no phone calls from concerned parents at all. Eureka!

Your Classroom

Maybe you already know what it took me years to discover. You spread your assignments equally through however many days you teach the class. If you don't, I highly recommend it for three reasons: (1) your students easily know how they are doing as the class progresses; (2) parents can track their progress; (3) and most importantly you will find yourself at the end of the class without a stack of final exams or a mound of papers to grade. You may be required by your school to have pop quizzes, multiple exams, and a final paper or exam. In that case I would balance the importance of each and distribute XP as evenly as possible as you would in a multiplayer classroom.

QUEST 9 WALKTHROUGH

- Teachers with no money to spend on software or no access to the internet or computers can design a multiplayer classroom.
- If appropriate for your students' age group, think of the peripheral skills they will need as job applicants. These may include writing inquiry letters; resumes with a proper level of information; and professionally designed portfolios if they are required to show their work. Find the time to incorporate all of these, including practicing person-to-person job interviews.
- Integrate every assignment you can into the narrative of the game. (Fundamental Concept Repeated!)
- If students represent opposing forces or ideas, allow them the chance to reveal or hide knowledge they alone have. Then let them discuss the events of the game in class. This means that they will have to contact one another outside of class concerning the narrative, and that narrative, as we know, can be tied directly to their learning.
- If possible, spread assignments and their XP equally throughout the term of your class.

CASE STUDY 7

Florida Gateway College



Denise Gross.

History of Video Games Teacher

Florida Gateway College

Lake City, Florida

Introduction

Florida Gateway College (FGC) is a state college in Lake City, Florida. The college serves a five-county area in rural north Florida. Our academic programs range from occupational certifications, college credit certificates (C.C.C.), to various associate's degrees (A.A. and A.S.) and bachelor's degrees (B.S. and B.S.N.). We are a small college that is student oriented.

In our Video Game Design program, one of our foundational courses is *The History of Video Games*. This course is required for all Video Game Design program students. It also serves as an elective in the A.A. degree program. So, we get a variety of students in the course. But no matter the degree plan, all the students love video games and often know a great deal about video game history.

For 3 years prior to my arrival at FGC, *The History of Video Games* had been taught as a conventional course with outcomes being measured by discussions, quizzes, essays, and tests. The textbook being used for the course was *The Ultimate History of Video Games: From Pong to Pokémon*, 1st edition, by Steven L. Kent (2001).

For my first semester of teaching the course in 2015 I kept the format the same. But during the semester I noticed that even though the students loved video games they were bored, they didn't read much of the textbook, and they weren't engaged.

I was familiar with the concept of game-based learning and also *The Multiplayer Classroom* textbook because of my master's studies at Savannah College of Design. Also, I had worked with another college for a short time as a subject matter expert writing a story-based gamified course. So, I decided to take what I knew and applied it to *The History of Video Games*.

Because I had some experience writing a story-based course before, I decided to go with that format. The challenges that I foresaw were as follows:

- The fact that I had to include the course textbook somehow in the story.
- The story needed to revolve around the history of video games.
- I also wanted to make the course more experiential and include playing vintage games in class.
- I wanted students to interact with each other.
- I wasn't sure how to assign points to activities and assignments.
- I didn't know how many levels to include. These would need to be based on the required textbook.
- I wanted the final assessment to be project based.
- I had to use our LMS (Canvas) to put all the information and activities in.

What I finally came up with was a story-based game where the students are playing as cyber agents (see Figure 9.4).

I broke the story down into levels. In each level are certain activities with points assigned to them (see Figure 9.5).

Because the course has been an in-person class the last 4 years, I have an attendance policy. Attendance is measured as "health." Health is 10% (100 pts.) of the final grade. If the student misses too many classes, it affects their health.

Acceptance of mission



You have been selected to become part of a top-secret project code-named: *Nolan's Trek*. As part of this project, you will train to become a cyber agent. You have been specifically selected to join this elite team because of your strength of character, your willingness to explore unknown territories, and your ability to share and converse with others.

Do you accept this mission?

If so, your assignment is to:

1. Send the Commander (instructor) an email from your student email account. Your email account can be accessed from here: <https://www.fgc.edu/current-students/email-account-instructions/> [↗]. The Commander's email can be found on the syllabus or the home page. Please include in your email:
 1. Your full name and any nickname you would like to be called
 2. Your cyber agent name
 3. And tell my why you think you are going to make a great cyber agent
2. Introduce yourself over in the Confab section (Discussions link). Please include your cyber agent name.

Once all cyber agents have accepted their mission and completed the assignment a new module / level will open up.

FIGURE 9.4 Acceptance of mission message in Canvas.

Welcome to New Recruits page

Welcome new recruits!

If you are seeing this page it means that you have accepted the mission to become a cyber agent for the Center for Interstellar Life and Astrobiology Research (CILAR). You have been recruited specifically to work on the top-secret project codename: **Nolan's Trek**.

As a cyber agent, there are several levels of preparation you must go through. As you progress through each level you will gain the experience necessary to become a full-fledged cyber agent and fulfill your mission.

You will learn more about the mission and receive more instructions as you progress through the levels.

[Please click here to enter in to the first level of preparation](#)

◀ Previous

Next ▶

FIGURE 9.5 Entering level 1 message.

On the first day of class, I read the syllabus to the students and explained that the class is a story-based multiplayer game (see Figure 9.6).

That it is broken into levels; and that they will be playing as cyber agents. I very specifically explain the grading in the course because that is what most students want to know about (see Figure 9.7).

Level 1 - page 1

Intelligence Briefing:

Six months ago, a deep space probe from the Center for Interstellar Life and Astrobiology Research (CILAR) discovered a planet on the edge of space. A distress message was also detected.

It read:

"5oci3ty d35tRoY3D. dON't m3R93 Wit t3Ch. D35p3RAT3. v-8l0t

8rAin i2 k3Y. TrY tO hid3 IT In T3H 5ToRY. R3M3M83r. ID3ntiTy Lo5t wIT V-8L0t. haNd2 CoNN3cT."

Translation:

"society destroyed. don't merge with tech. desperate. v-blot

brain is key. try to hide it in the story. remember. identity lost with v-blot. hands connect."

The message's code is reminiscent of a language on Earth that is only used by the most elite group of computer hackers. It is called 133t, "elite", or just "leet". Leet uses numbers and ASCII characters to replace letters of the English language. The distant planet has earned the name Planet 133t.

The deep space probe has discovered that Planet 133t is populated. The beings living there seem to be a very diverse group of biological machines. They come in all shapes and sizes. Many appear very human-like. There are also ones that resemble animals, plants, and even amorphous fluid-like beings. All of them have some degree of technology merged with their biology. They can communicate, appear to be intelligent, and are able to interact with us. They should be considered to be *cyber-beings* or *robots that are alive*.

FIGURE 9.6 The story begins.

Level 1 - page 2

For your first level there will be:

- Several Briefings
- Briefing Documents to review
- Two Trainings
- Two Debriefings

Briefing 1

Our first step in helping the inhabitants of Planet 133t will be to start examining the history of games here on planet Earth.

Our first briefing will look at the historical origins of games.

Thursday 8-23-18 during class -

[Jane McGonigal: Gaming can make a better world](#) (TED talk) start at 12:10 ; end at 14:58.

Please go to next page

◀ Previous

Next ▶

FIGURE 9.7 An assignment message.

The grading in the course is based on the normal A–F grading scale. The important points from the syllabus follow.

Learning Activities

This class is designed as a multiplayer game. There is a story that is part of the game.

Learning activities that will take place include

- Briefings (lectures)
- Briefing documents (reading assignments)
- Trainings (gameplay or activity)
- Debriefings (analysis and/or discussions)
- Battles or combat training
- Crafting artifacts (items/projects produced in the material world by agents)

Grading Policy Grades will be based on the following:

Levels (seven @ 100 pts. each)	700
Health	100
Final historical artifact	200
Total points	1,000

Evaluation This course provides you with an authentic learning experience unlike any other you are likely to have encountered.

This course will be played as a game. The goal of the player (student), in the role of a cyber agent, is to complete an overall mission. There are seven levels in the overall mission.

To complete the overall mission the player will craft an historical artifact.

The commander (instructor) will assign players to mission teams. These may change depending on the levels.

Possible combat may be encountered during the overall mission.

Results

In the 4 years of teaching *The History of Video Games* as a multiplayer course, approximately 90% of the students were male and 10% female. The age range spanned from 15 to

28 years. We have high school dual enrollment students at our college, hence the 15-year old. Many of these students were first generation college students.

The first time around the students liked the story-based aspect but wanted more. I had not really finished the story in a satisfying way. This was mostly because I just didn't know what to expect from the students and I ran out of time. I originally planned ten levels because I usually make my courses 1,000 pts. and it seemed that ten levels at 100 pts. apiece would be an easy breakdown. But the ten levels turned out to be too many. The course now consists of seven levels. In each level there are briefings (lectures), briefing documents (reading assignments), trainings (gameplay or activity), and debriefings (analysis and/or discussions).

During the first 3 years, I unlocked the levels as the students completed them so they couldn't see what was about to happen. But during the fourth year I had a couple of students who didn't like not knowing what was coming up, so I changed my approach. I let them know that the story would open as the levels were completed, but I gave them a course calendar in the syllabus that included the assignments and points for each level. This satisfied these particular students.

In all the years taught, the students love making up their cyber agent name. Most students enjoy the story aspect because not only it is a different approach but also it incorporates the playing of vintage games on retro consoles. This makes it very experiential. They then have to use their imaginations to analyze and explain these games to alien beings. Many of the students wanted back stories to the different types of beings found on the alien planet. Many students wanted more of a visual component (images) to the story. And almost all of the students wished there was some kind of interface component (more than the traditional LMS interface) that would make it more like a real video game.

The ending of the story is still not as strong as I would like it. I am still working on this. But basically, if all the cyber agents (students) craft a successful historical artifact (final game) they end up saving our planet and restoring humanity to the beings on the alien planet.

In 4 years, the only students who were not successful in the course were the ones who just stopped attending. This only happened a couple of times. Overall, the students have given very good course evaluations. Here are a couple of examples:

The one thing about this course that I feel most courses miss, is it wasn't standard. What I mean by that is, in most classes you come in, sit down, lecture, homework, test, blah blah blah. You think about it, that's a very unnatural process. ... I think this class hit a home run in education tactics and group dynamics.

The content was what made the class most valuable to me because it was interesting.

Starting last year, I incorporated some rewards for making it to certain levels in the course. For example, if they make it to level 5 they get a promotion to a “First Level Archivist.” With these promotions come added points to their grades. If the student works with other students they can get secret rewards and promotions. For example, if they teach another student how to play one of the vintage games they can get promoted to the “Training Corps.”

Future Thoughts

Up to this point, I have been just using points instead of XP. This next year (Fall 2019), I am putting the course online and will be incorporating XP as part of the grading.

Since this will be an online class next time around, I would like to write backstories for the different alien beings. Online participation will be again connected to health.

I will continue to polish off the story to incorporate aspects of what I want the students to learn.

CASE STUDY 8

Columbusskolen



Tore Kjellow.

Educator & Entrepreneur

The School at Play-project

Skanderborg, Denmark

Introduction

In a special needs classroom in Denmark, eight special needs students managed to catch up with their peers in the ordinary classrooms across the road from the special needs school, Columbusskolen in Skanderborg, Denmark, in just 24 months. Some of the students even surpassed their former classmates. Their overall test scores jumped a whopping 121%

across two school years. The students' social skills took a similar leap, and three of the eight students returned to ordinary classrooms without further support. The list of almost unbelievable achievement and progress made by these kids is almost embarrassingly long. To get to grips with how, and what happened, we need to step back in time to the beginning of The School at Play-project.

Humble Beginnings

In 2012, I was teaching a special needs class consisting of four kids with severe social and emotional problems. On any ordinary school day these kids would be taught curricular matter for something like two times 15 minutes in total. The rest of the day mostly consisted of social training and the teachers trying to resolve conflict between the kids. However, I noticed that when the kids were playing tabletop RPGs, they exhibited the behavior the teachers thought they were unable to do. They would concentrate for hours on end, discuss moral and ethical issues, wait for their turn, and even do math, read, and write on a way higher level than during ordinary classroom activities.

I thought to myself; "These kids are clearly capable of most of the things their papers and diagnoses say they can't do. What if there is really nothing wrong with these kids? What if the problem is the way we teach?" I started to do some research into what could be going on and stumbled across an article on Lee Sheldon's *The Multiplayer Classroom* and another article that talked about how immediate, specific, and positive feedback was extremely beneficial for kids with attention deficit hyperactivity disorder (ADHD), and that if a person with ADHD was motivated enough for a task, their cognitive function would be indistinguishable from a non-ADHD person. The contents of the two articles combined in my head, and my next thought was, "Well, what if I turned my classroom into a game—and made sure I put in lots of immediate and positive feedback as an intrinsic motivator?" That was the origin of The School at Play-approach.

During the next years my students and I would experiment, iterate, and develop the method. In the beginning I would use role-playing sessions as a meaningful context for whatever the students were supposed to learn. I showed them how they could become better players by studying, and at the same time, through postgame session reflections, I helped them to transfer skills from the game sessions to the classroom (see Figure 9.8).

I also started adding extrinsic game elements to the classroom by awarding the kids with silver coins for tasks I wanted them to focus on. These silver coins could be used during the weekly tabletop role-playing sessions. This way they were receiving the intrinsic rewards of your positive feedback and tangible extrinsic rewards as well. We used a laminated A3 paper which we stuck to the wall. On it was a grid showing the tasks we had chosen and their value in silver coins, the currency we used in our RPG sessions (see Figure 9.9).



FIGURE 9.8 Play and study led naturally to each other.

RPG SAVINGS							
	DONALD	BARACK	GEORGE	BILL	RONALD	JIMMY	RICHARD
COATS IN THE WARDROBE (20 SILVER COINS)							
ARRIVE QUIETLY (20 SILVER COINS)							
KEEP QUIET DURING ASSEMBLY (20 SILVER COINS)							
START WORK WHEN YOU'RE ASKED TO (20 SILVER COINS)							
MOTOR SKILLS TRAINING (20 SILVER COINS)							
PERSONAL SOCIAL GOAL (20 SILVER COINS)							
PERSONAL CURRICULAR GOAL (20 SILVER COINS)							
"CRITICAL HIT" (20 SILVER COINS)							
"PERFECT HIT" (60 SILVER COINS)							
TOTAL:							

FIGURE 9.9 The silver coin grid.

On the first level (not even called a level yet), the tasks involved things like “Put your coat away,” “Arrive quietly,” “Start your work when you’re asked to,” and also more open categories like “Critical Hit” and “Perfect Hit.” This made it possible for us to reward behavior otherwise not specified. My first thought was that this way of providing feedback was only going to be useful for the students, but I quickly learned that even more so this was useful feedback for me on which students I would “see” and acknowledge during the day. It was important that all the students did something great and valuable every day, and that if they weren’t rewarded for praise or coins, it was only because I didn’t see it. So if Donald was lagging behind the others, I needed to pay extra attention to Donald to make sure I saw, acknowledged, and rewarded him for his efforts. This wasn’t strictly fair from a game-rule point of view, but it was fair from a “everybody gets assessed on their own level” standpoint. And the kids never felt that it was unfair.

Transition

This feedback through a virtual currency provided the much needed immediate and positive feedback to the kids in a way that was meaningful and valuable to them. But I had a problem. Or rather my colleagues did. They couldn’t replicate what I did because they had no experience as RPG masters. All attempts to replicate the system failed. Then it occurred to me that if I replaced the role-playing sessions with video games, the system might become more scalable, and my colleagues might stand a better chance of success.

I then started playing hard video games with the kids for 1 hour every day, and following each game session with half an hour of reflection. I would use three different concepts as a focus for the reflections: WALT, WALF, and TMB.

- *WALT* (We Are Learning To) would pertain to what the kids felt they were learning while playing; what they felt was hard to do; and what they felt they needed to improve in order to get better at the game.
- *WALF* (We Are Looking For) would be how the kids would expect their game experience to change when they’d mastered the different WALTs.
- *TMB* (This Matters Because) would be the kids’ reflections on how the skills trained would be applicable outside the game world.

The Social Space as a Game

Playing video games instead of RPGs meant that we could use the games as an intensive training ground for things like multitasking, cross-checking, persistence, patience, concentration, and working memory. The first 3 months we played Tiberian

Sun and StarCraft II. Both were Real-Time Strategy games that require intense focus, multitasking, and concentration—and StarCraft II even provides ample data on your progress after each game, data that can be analyzed and reflected upon in class. The games also had a lot of interesting mechanics that I used as meaningful contexts for the curricular content. For instance understanding how doing quick multiplication in your head could give you an edge in StarCraft II. When your base building is placed at an optimum spot between mineral fields, each field will be saturated by three workers. Any less and you won't be getting the full output from the mineral fields. Any more, and you are wasting precious resources by having workers waiting in line to access the minerals. So if you put your base next to seven mineral fields, you'd multiply seven by three, order the construction of twenty-one workers, and then move your focus to other things.

This was great and all, but I now faced a new problem. The virtual economy that used to be linked to the RPGs suddenly became irrelevant. I needed to rethink the currency and the rules also changed a fair bit. The currency would no longer be useable in-game. Instead it would buy things like 5 minutes early off from class, 10 minutes to prepare homework for a different subject, the ability to choose what game you play during game sessions yourself, etc.

I added a Class Vault, where the students could donate Virtue Coins, and buy special rewards: things like watching a movie during class or going on a trip. The teachers would still choose the movie or the trip to make sure it aligned with their curricular aims for the class.

The students were allowed to nominate each other for rewards to enhance the focus on the interaction between students and to highlight positive behavior that we did not notice ourselves.

In classrooms with more students we added “Party Crit” points where groups or parties could be rewarded together as a unit.

We added the notion of “leveling up” every once in a while, when the tasks and rules set up were no longer challenging or interesting. The students were invited to a leveling up session, where everybody pitched in, and designed the next level of the Classroom game. The students would have a say in what social actions should be rewarded, what could be purchased through the virtual currency, adjusting the prices, and the mechanics of the game. Essentially the students became codesigners of their own classroom experience.

Curriculum as a Game

Alongside the classroom game, I also added game elements to the curricular activities using what I called Quest Lines and The Progress Wall.

A typical Quest Line looks like Figure 9.10:
It consists of the following elements:

1. A title—this is supposed to frame the assignments in a meaningful way for the students
2. Logo from the game we are using to create the context
3. Space for the student to put their name
4. The difficulty, or working speed, for the student
5. WALT and WALF defined by the teacher. What are we trying to teach you and how do you know when you have mastered it
6. A personal progress bar. It should be adjusted so that 100% is what the teacher expects from the particular student (hence the difficulty setting)

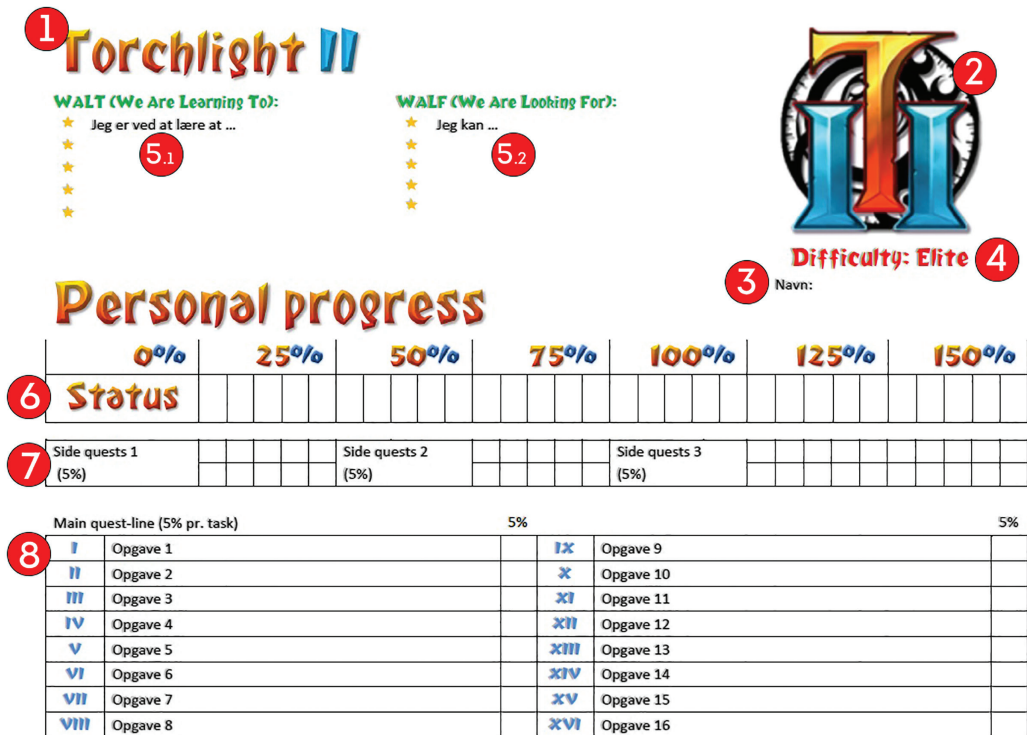


FIGURE 9.10 A typical Quest Line.

7. Side quests, or optional extra assignments, that the student can do in their own time, and in whatever order they fancy
8. The Main quest line. The assignments that must be done for the “adventure” to be completed.

The teacher should try to balance the different difficulty levels so that all levels can reach 100% in approximately same amount of time. In addition to the personal quest lines, we also have a great progress wall, several meters wide on the classroom walls, where the students can move their names whenever they reach certain milestones (see Figure 9.11).

As with the quest lines, the progress wall consists of a number of elements:

- Title
- A row per subject that we are tracking
- Progress indicators that matches the ones on the students’ personal progress bars
- A moveable nametag for each student for each of the corresponding subjects

As with the social game elements, it is important to understand that the feedback on progress from the quest lines is as much to be used as a tool for the teachers as it is for the students. If a student is falling behind, the teachers should be able to identify this issue immediately and address it by increasing support to the student to make sure they catch up again.



FIGURE 9.11 The Progress Wall.



FIGURE 9.12 The Wall of Wisdom featuring student achievements.

After each “adventure” every student gets an achievement that goes on the Wall of Wisdom in the classroom. The achievements all depict the name of the student, the progression that he or she has made, the game that was played, and what curricular subject was taught in relation to the game. For instance, chance and probability in *The Settlers of Catan*, Maps and navigation in *The Lord of the Rings Online*, etc.

These achievements can be taken home when the semester ends. Usually the “Wall of Wisdom” (see Figure 9.12) is the first thing the kids show off when they have visitors in school. When summer vacation started one kid even took down all of his soccer posters at home and put up his achievements instead.

Results

When I started to bring games and games thinking into my classroom I had four students, all with a string of failed school experiences behind them, and most of them with an ADHD diagnosis on top. To carry out a traditional lesson for these four students required the presence of three teachers. During the 2 years the project lasting in special education,

the size of the class grew to eight students with the same kind of challenges. A class of eight who could easily be taught to two teachers using this new approach. They went from two times 15 minutes of being taught curricular matter a day, to two times 90 minutes, which of course made a huge impact on their test scores. The parents of the kids were asked to assess their own children on a scale from 1 to 10 in areas such as motivation, engagement in school activities, perseverance, curiosity, and planning skills. On an average the parents reported scores that were more than doubled within the first year.

The Road from Here

Based on the results and experiences from special needs education I argued that if special needs kids could catch up and even surpass their peers in regular schools when using The School at Play-approach, it would be very interesting to examine what would happen if the approach was implemented in regular classrooms. I was promoted as consultant for the municipality. I spend 6 months training local teachers and implementing this approach across the municipality. This attracted quite a bit of attention from both the media and the scholars in the Danish universities. By January 2015, I had quit my position as a consultant, and started The School at Play-project as a private enterprise, and together with Aalborg University, I spent the next 3 years conducting a large-scale research project on the approach in regular classrooms. The research found that this way of teaching can greatly diminish the feeling of pressure from school; raise general well-being; and strengthen twenty-first century skills, increasing motivation and engagement in class for both boys and girls.

Since the end of the research project, The School at Play-project (<http://www.skolenispil.dk/>) has resumed training teachers, giving talks and consulting on games and game-based learning in every thinkable educational setting.

Read more on the research project here: https://www.researchgate.net/publication/326698208_Can_cooperative_video_games_encourage_social_and_motivational_inclusion_of_at-risk_students

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SECTION 3

Game Design and Development 101



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Identifying Learning Objectives and Student Needs

YOU SHOULD NOW HAVE A PRETTY GOOD IDEA of what is possible and many of the underlying concepts of the multiplayer classroom and how it developed over time. In addition to a selection of my classes, you will have seen in the new case studies other directions teachers of students from kindergarten through postsecondary classes have taken in the multiplayer classroom. The first edition case studies are also available in Section 5. It's now time to examine the specific steps I suggest to design coursework as a game. We will start out slowly in familiar territory. Video games allow players to learn in a safe environment.

In fact, players often have to deliberately do something they know they shouldn't do in order to fail in a game's early moments. Or players may be protected entirely. They cannot do something that will harm them. That choice is withheld from them. Ready? No need to be afraid. You're already on Quest 10 after all.

There are three issues that must be addressed in the multiplayer classroom's development cycle. Two are no different than any other type of class: learning objectives and student needs. One is game specific. But first, let's begin with one issue that shouldn't affect us.

HOW STUDENTS LEARN

Not all students learn the same. Or do they? According to an article in Wikipedia (*Learning Theory (education)*, December 16, 2019), up until the 1970s, all students were taught pretty much in a similar manner. In that decade and since, a number of researchers have attempted to identify how students learn, coming up with various models such as Kolb's Experiential Learning Theory that identifies four learning styles: Converger, Diverger, Assimilator, and

Accommodator. Peter Honey and Alan Mumford adapted Kolb's model to managers in business. Anthony F. Gregorc and Kathleen A. Butler based their model on how individuals perceived the world. The Sudbury model of democratic education stated that there are many ways to learn, and that each child should be given the personal freedom to learn in their own fashion. Neil D. Fleming's popular visual, auditory, reading/writing and kinesthetic (VARK) model identified visual learners, auditory learners, and tactical learners.

All of these models and others have been heavily criticized. In 2009, a panel commissioned by the Association for Psychological Sciences published a report that outlined a research design to properly study the effect of learning styles, and it asserted that this methodology was almost entirely absent from learning styles studies. Of the few studies utilizing this research design, all but one feature negative findings. They also doubted the value of the significant cost of attempting to identify the precise learning style of every student over other interventions such as individual tutors. They concluded that "at present, there is no adequate evidence base to justify incorporating learning styles assessments into general educational practice. Thus, limited education resources would better be devoted to adopting other educational practices that have strong evidence base, of which there are an increasing number."

In 2015 another study, "The scientific status of learning styles theories," from Daniel T. Willingham, Elizabeth M. Hughes, and David G. Dobolyi stated flatly that "Learning styles theories have not panned out." In January of 2019 a study from the American Association for Anatomy determined that students with a theoretically principal learning style did no better than those who used study strategies unrelated to learning style (Husmann et al., 2019).

Then, of course, there has been an outcry from the defenders of learning styles. And a subsequent pushback from defenders of the critique. And on and on and on.

HOW GAMERS LEARN

I am not a researcher or a scientist. I certainly am not going to step into the middle of this debate. One day it may be proven that the players of video games fall into a certain learning style, or none at all. Or there may still be some new secret to education out there we have not yet discovered. All very well and good. But it doesn't matter. Why? For the simple reason that designers of multiplayer classrooms are not exploiting learning styles or any other educational system. Video games succeed for millions upon millions of players because it doesn't matter *how* the players learn. They learn because they *want* to.

The punishment inflicted on gamers when they fail is minor when compared to failure in the real world. So, players can feel they are heroically picking themselves up from the grimy floor of a dungeon to try and try again. Video games encourage players to learn, and reward them, both extrinsically and intrinsically, when they succeed. That is why the range of students from high school students in Nebraska (Case Study 6), kindergarten ESL students from Korea (Case Study 2), and special needs students from Denmark (Case Study 8) can all be reached.

Game designers routinely tweak their games for all sorts of players. In 2005, I began the first design of three video games based on Agatha Christie mystery novels: *And Then There Were None* (aka *Ten Little Indians*). At first glance, using books where the primary action involves detectives questioning witnesses and suspects over tea in the village vicarage might not strike one as very suitable for video games, which are an action medium. In fact, video games are the only medium where the audience is an active participant. Yet would a first-person shooter be the best type of game for an Agatha Christie novel?

Hercule Nukem! Now on Steam!

- You are Poirot, a murderer’s worst nightmare!
- Gun down the forces of evil!
- New and unique weaponry!
- Secret Belgian finishing moves!
- Hyper-realistic character models!
- Blood spatter effects with accurate physics!
- Custom tailored wool, cotton, and silk body armor!
- All new waxed moustaches targeting system!
- Power Packs include tisanes and fois gras!
- Health bar tracks Poirot’s hunger!

Probably not. And, happily, Hercule Nukem is *not* available on Steam. However, Agatha Christie readers are puzzle solvers. Mysteries are a string of puzzles requiring clues to solve them. As each one is solved, more of the truth of the story is revealed. As a puzzle in a video game is solved, the story and the player advance. Action, as I’ve written in *Character Development and Storytelling for Games* (2004, 2014) is not simply fights and car chases. “A commentator can describe a chess match as filled with action: two minds battling it out with move or countermove. A sharp exchange of dialogue in a courtroom drama is action.” Knowing that puzzles were the connection between Agatha Christie and video games helped me immensely.

Know your players. Educators interested in trying to implement the multiplayer classroom should learn as much about their students as possible. Happily, for teachers, we usually know quite a bit about our audience: its age, gender distribution, learning abilities,

and so on. I ask most of these questions aloud and receive verbal responses, but I also ask students to write down answers to the following:

- Preferred Name/Nickname
- Pronouns
- Year
- Department/Program
- Major
- Interests/Hobbies/Talents

I ask them to write these down so I can begin to sort them not only into guilds but also for personal privacy. In college many students are still trying to come to grips with their identity. I see no reason to force them to announce anything that deeply personal. Asking pronouns is a much more respectful way of learning how they would like to be addressed.

We also know what it is we're meant to teach. Whether it's calculus or the First World War, we are preceded by generations of teachers. The coursework is established. We not only know it for a specific class assignment, but we also know where that assignment is meant to fit in the continuum. Calculus should probably not be taught before addition and subtraction. The First World War should probably not follow the Second World War.

We've even been given some pointers on how to teach a course. But even so, it can be a struggle. As I pointed out earlier, it's very much like writing and designing an ARG. The classroom is not a hermetically sealed chamber. It is part of the real world. Time passes. Real people enter with certain expectations and attitudes for which no amount of curriculum planning can prepare us. We must adjust.

If we are curious enough about designing our class as a game, the first question we should ask is this: Is the material appropriate to be presented as a game? As the case studies in this book show us, we're still answering that question. But we can look at a course we teach as a series of puzzles that must be solved by our students, whether those puzzles are explicit (quizzes, exams, questions posed by the teacher during a lesson) or implicit (how can a student take good notes?). Each assignment is an obstacle that must be conquered. It isn't that much of a reach to state that obstacle is something from a video game, a quest that is only one part of a quest chain: that theorem must be *crafted*; that *mob* must be overcome.

I have yet to hear from an educator who has tried to design a multiplayer classroom and discovered that nothing of their subject is suited to some form of gameplay. And now the multiplayer classroom is not alone. Others such as Matthew Farber (*Gamify Your*

Classroom, 2014, revised 2017) and Michael Matera (*Explore Like a Pirate*, 2015) have published popular books highlighting their own takes on this form of game-based learning.

In the end no digital solution is as flexible, as personal (both for teachers and students), or is able to be used without a computer. We should not think the entire planet where game-based learning could flourish is wired.

Educational goals do not change in the multiplayer classroom; only the path we take to reach them. The first step along that path is to list them as you would in any traditional class. These goals are broadly stated and need not refer to games at all. In fact, they shouldn't. It isn't our purpose to mold outcomes to fit the procedure, but the other way around.

Objectives on the other hand are specific, measurable outcomes. Here is where you identify your audience and what you expect from them. You've undoubtedly heard basic learning objectives called the ABCD's: **A**udience, **B**ehavior, **C**ondition, and **D**egree.

- **Audience.** Your audience is your students. In games, it is your players.
- **Behavior.** The actions needed to demonstrate learning. In games, it is the actions that result in a player overcoming an obstacle, solving a puzzle, and completing a quest.
- **Condition.** The tools a student may or may not use and the circumstances under which the student may learn. Calculator? Open book? In games, these are tools to create items, or weapons to fight mobs; and the rule set that governs play.
- **Degree.** What criteria will measure the student's success? In games, it can be the level achieved or the phat l00t needed for the player's continued success.

If your audience involves participants, or interested parties, in your educational system, then your goals may be similar to these:

- Goal 1: Ready to Learn
- Goal 2: School Completion
- Goal 3: Student Achievement and Citizenship
- Goal 4: Teacher Education and Professional Development
- Goal 5: Mathematics and Science
- Goal 6: Adult Literacy and Lifelong Learning
- Goal 7: Safe, Disciplined, and Alcohol- and Drug-free Schools
- Goal 8: Parental Participation

We're on firm ground here, aren't we? Nothing new or earthshaking so far.

Student needs are as vast as their numbers. But again, they rarely walk into a classroom as entirely unknown quantities. Special needs students are identified as part of school policy. They should arrive armed with official papers outlining learning or behavioral issues that have been identified, as well as instructions on how to create the best learning environment for them.

Some students may need to pass a course because it is required by the school. Others may need it as preparation for a university, or a degree, or simply because they want to gain knowledge on a specific subject for a career or a hobby, or just out of curiosity. It's important to know why they are in that classroom. It's one of the first questions I ask.

The next question is designed to gauge their game literacy. Some students will know every video game term I've used in the body of this book, and many more. Others will have played casually. And some will never have played at all. Learn their interests and abilities and be prepared to adjust your design. Yes, on the first day of class. The needs of all these students must be taken into account.

Once we've identified our audience, written our learning objectives, and identified the individual needs of our students, it's time to make some specific decisions about our game's design. We'll tackle those in Quest 11.

QUEST 10 WALKTHROUGH

- Video games allow players to learn in a safe environment. (Fundamental Concept Repeated!)
- Anyone interested in trying to implement a multiplayer classroom should learn as much about their students as possible. (Fundamental Concept Repeated!)
- Make a list of the goals you would like to meet in your class.
- Learn who your students are.
- Learn why your students are in the class.
- Learn your students' game literacy, their interests and abilities, and be prepared to adjust your design.

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Student Demographics

AS WE SAW IN OUR LAST QUEST, the first steps to designing coursework as a game are almost exactly what we do to prepare for a traditional class. We stray only when in the interests of knowing our audience, we determine their levels of knowledge and comfort within the world of video games. We'll continue our preparation by looking in more detail at three key aspects of our possible audience: age, gender, and income level.

AGE

The case studies in this book represent a great swath of age groups from 4 years old to adults. Most of these adults are in their early twenties, although there are some older adults as well. Let's start with younger ages. To do that, we will begin with an important detour.

In 1994, The Entertainment Software Association (<https://www.theesa.com/>) established the Entertainment Software Rating Board or ESRB (<https://www.esrb.org/>).

The Entertainment Software Rating Board (ESRB) describes itself as “a non-profit, self-regulatory body that assigns ratings for video games and apps so parents can make informed choices.”

Their rating system is the video game industry's equivalent of the Motion Picture Association, which rates movies. Even though compliance is voluntary, almost all retail games sold in the United States and Canada are rated by the ESRB. As its website (<https://www.esrb.org/>) states, “Many U.S. retailers, including most major chains like Target and Walmart, have policies to only stock or sell games that carry an ESRB rating, and console manufacturers require games that are published on their systems in the U.S. and Canada to be rated by the ESRB.” They administer a three-part system that includes Rating Categories (Everyone through Adults Only 18+), Content Descriptors such as Mature Humor or Tobacco Reference, and Interactive Elements like In-Game Purchases or Users Interact.

Of the 2,768 ratings assigned by ESRB in 2018:

- 42% received an E (Everyone) rating
- 19% received an E10+ (Everyone 10+) rating
- 30% received a T (Teen) rating
- 9% received an M (Mature) rating

Additional information can be found in the Entertainment Software Association's 2019 report, *Essential Facts about the Computer and Video Game Industry* (<https://www.theesa.com/esa-research/2019-essential-facts-about-the-computer-and-video-game-industry/>). Here are some highlights:

- 75% of Americans have at least one gamer in their household.
- The average game player age is 33.
- 65% of American adults play video games.
- 54% of gamers are male; 46% female.
- 90% of parents pay attention to the games their child plays.

Just as we create traditional age-appropriate coursework, so too must the multiplayer classroom be age-appropriate. And not just for children. This new wave of casual and social games has swept up older players as well. Today 60% of adult gamers play games on a cell phone and the most popular game genre is casual at 71%.

There have been many reports of games being played in assisted-living facilities to sharpen reflexes and cognition. And of course, family members of all ages are now playing together. There is no longer a gap between gamer generations. Probably because, as the Entertainment Software Association's report states, those 65% of American adults who play video games are parents (Gen-X) and grandparents (Boomers) who have been playing video games for 25+ years.

Older members of the population make up a huge portion of continuing education students. I suspect more than one teacher of a continuing education class is playing around with coursework as a game. And even the youngest child expects a certain level of engagement that comes from quality game design and storytelling. Whether we use video games in the classroom, or design the coursework as a game, they will notice the difference in quality immediately and punish us with their inattention.

And education does not always occur in schools. In Quest 2, my focus was specifically school-based education. But corporations everywhere are using games to engage, train, and motivate their employees. I have been approached by corporations interested in everything from improving their employees' fitness to exploring the use of games to teach safety.

Corporate executives are a very different audience from their employees, as I discovered when I created *Skeleton Chase 3: Warp Speed* to encourage team-building and to introduce the concepts and hardware of transmedia to upper-level executives. These executives, both male and female, were highly competitive, very conscious of their place in the corporate hierarchy, and a few were far too eager to delegate responsibility for most of the gameplay to their juniors and then reap the rewards.

As I mentioned in the previous quest, age is a critical factor in how to design a multi-player classroom. And even within age groups, we find different attitudes and educational goals. There are still two other factors worth considering.

GENDER

A stereotype of gamers I hope we can lay to rest is that gamers are mostly teenage boys. As you can see in the above statistics, currently 46% are female, and their numbers are still growing. There are four points I would like to bring up here.

There have been a number of attempts to design games strictly for women. Yet there is ample evidence that this approach simply creates a self-imposed ghetto for female players. Men are far less likely to play games designed explicitly for women, limiting the market for such games. Some men think playing these games will make them seem like sissies, or they're angry that women are trying to exclude them. Of course, this ignores the fact that men have been making games for decades with subject matter pretty much guaranteeing that their audience will be predominantly male. Stressing over being thought of as less than manly for playing games says more about someone's lack of self-esteem than anything else.

I have always been of the belief that the most successful stories are not exclusively aimed at a particular demographic, but are inclusive, offering something for everyone. Movies have known this for a long time. Animated films routinely include references aimed at the parents who have brought their children to the theater. Rom-Coms offer attractions for the males who might feel put upon being dragged to the theater, and in the process, save them from themselves. "Well at least there's a car chase at the end of that one," they console themselves. "Maybe he's more sophisticated and well-rounded than I gave him credit for," marvel their dates.

The most beloved and successful movies of all time were written either by accident or on purpose to appeal to the widest demographic from *Casablanca* to *Gone with the Wind*

to *Avatar*. *Casablanca* surrounds its romance with intrigue and suspense. *Gone with the Wind* deals with romance in the face of war and the death of both soldiers and a way of life. *Avatar* makes us care about its characters because they care about one another.

But we can't stop there. In today's world we are witnessing a cultural awakening. Thanks to the openness in which at least portions of our society now regards gender, stereotypes have been at least dented, if not shattered. The word gender itself now embraces a diversity that is becoming recognized in popular culture and demands to be acknowledged by those of us who teach.

In the first edition of this book I wrote, "So the rule here is simple: do not design for men or women alone. Broaden your tent to include as many people as you can." Today, I say, do not design for gender. Be as inclusive as you can. But by the same token, resist pretending that all of your students look at the world through the same 3D glasses. They don't.

Back to the binary for a moment because that's what the ESRB bases its statistics on. In games, solid research suggests that men enjoy competition; women enjoy collaboration. Are there men who enjoy collaboration more? Yes (raising hand). Are there women who enjoy competition? Of course! So, another step in your learning about your audience is to identify those elements that attract *all* of your students and include them in your design.

It should be noted that one does not need to be a specific gender to create engaging, true-to-life characters. The human imagination, coupled with the talent to translate that imagination for an audience, can handle all with aplomb. But we must find, encourage, and support more gender equality in the still male-dominated careers that make up a game development team.

In Quest 12 I will suggest that, if you are uncertain whether you can design your own games, you will want to seek out help. We see this reaching out in action in a couple of the case studies in this book. Reach out to anyone wherever you can. You won't regret it. Your game will be better for it, and you'll be doing your part to help balance an inequity that has been standing far too long.

INCOME LEVEL

The last key audience factor we need to look at here is income. If there was nothing else to recommend the multiplayer classroom, here is still a reason to take the plunge. As much as Americans would like to think we are the most wired nation on the planet, it is not true. In 2011 in the first edition of this book I wrote that the United States ranked nineteenth in the world in broadband (high-speed) penetration. And broadband penetration was now used as an economic indicator. I wrote in the first edition that only 27.1% of households in the United States had high-speed Internet. And many other countries were increasing their percentages much faster than we were. As of 2017, our percentage of homes with broadband soared to 83.5%. Yet our international ranking fell to twenty-nine. Unfortunately, that high percentage of homes with broadband is distributed very

unequally by income level. Some schools in underfunded systems may not be able to provide a laptop for every student. And few see game consoles as a priority in every class. Just the opposite!

As I've pointed out more than once, a multiplayer classroom can be designed in its entirety without ever requiring a student or a teacher to turn on a computer. Compare that to schools that spend thousands, tens of thousands, hundreds of thousands, of dollars on hardware and software.

This is not to say that computers aren't needed. They are desperately needed. Our education system, once the envy of the world, has been gutted to the point where we are in crisis. And we use computers to assist in that decline, more than to arrest it. The more we concentrate on standardized tests and standardized syllabi and standardized teaching methods, the more we rely on computers to measure success, and the deeper the hole we dig.

Computers should not be used in the classroom simply to make it easier to grade multiple choice exams. But even if we don't have them to help with creativity and critical thinking, we can still give students the benefit of games to foster creativity and critical thinking—where the most technologically advanced teaching aids are a chalkboard, paper, markers, scissors, and glue. Lower income classes are typically underachieving classes because standardized teaching methods fail to reach this student population. Creating the right game to reach your audience is essential.

Let's assume you now have done your homework. It's time to tackle the details of game design and development.

QUEST 11 WALKTHROUGH

- Find statistics you may need when talking to colleagues, administrators, and parents who may be unfamiliar with video games.
- Design the class as a game appropriate for the age of students.
- Design a game that is inclusive and attractive to a diversity of genders.
- Design a game that can be played in your classroom with a comfortable budget. Comfortable can be \$0!

REFERENCE

Entertainment Software Association. (2019). Essential Facts about the Computer and Video Game Industry. https://www.theesa.com/wp-content/uploads/2019/05/ESA_Essential_facts_2019_final.pdf.



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How Games Are Designed

GAMES ARE DESIGNED AND DEVELOPED. Development may follow design, or these two processes may occur simultaneously. The first style of design methodology is the traditional “waterfall” model that originated in manufacturing and was being adapted for software development as early as 1956.

If you look up an image of the waterfall model online, I suspect you can deduce why it is called the *waterfall* method. The first formal definition of this approach was a paper delivered by William R. Royce at the IEEE WESCON 26 in 1970. This was a sharply critical analysis of the waterfall method, even though that word was not mentioned. The idea is simple: start with a plan, implement it, and then look after the results.

This makes it extremely important to have a solid design document up front. Being a writer, this appeals to me. Making sure that all initial ideas are in one central location for the development team to access can save time and effort and give confidence to the team that the plan is practical. It is important though that they understand the design document is a living record of what is planned, and that it will change as development progresses. Therefore, flexibility is maintained, but not at the expense of the overall vision.

However, much of the game industry has embraced a second model. Called *lightweight software development* to counter the perception of the waterfall as heavyweight development, it has been around in one form or another almost as long as the waterfall system. One of the earliest names for this approach was called *Scrum*.

SCRUM

Scrum is a rugby term, meaning an initial struggle for the ball by the forwards of the two teams, who are hunched over with arms interlocked. It’s something like a more physical version of a jump ball in basketball.

It doesn't sound very promising as a development methodology, does it? Since 2001, lightweight development models have all huddled under the umbrella of "agile" development. That sounds a lot better.

If you find an image of agile development online, it may look complicated. Despite the complexity, it has much to recommend it as well. Again, the idea is simple. The agile model focuses on teamwork, collaboration, and flexibility throughout the entire development cycle. Relying on much face-to-face interaction, agile development is accomplished in short, compact bursts from a few days to a few weeks in duration. During each of these, the steps of waterfall development are followed to produce individual modules (as bug free as possible) that, when combined, become the finished product. Agile development is often characterized by the following mantra: "Iterate, iterate, iterate!"

So, okay you're wondering, which should I use? I suggest both. You're probably already using a combination of both. Even though it may feel like it, creating a new class is not as difficult as creating a new software product. And once you've done it, the next iteration of it is easier. Think of the strategy for your class as an entire development cycle highly compressed in time and space: a series of steps you are constantly revising as you work until you end up with a feasible plan of action. While you may build upon the efforts of those who have taught the class before, or ask the advice of others, you do the bulk of the work. You make it your own. There is no huge team to coordinate. Even as you iterate, iterate, and iterate, in the end you have a road map for the entire class.

Remember that a key to a successful game in the real world in real time is flexibility, so you must always be prepared to adjust and even improvise where needed. This is the job of the Game Master in role-playing tabletop games.

TABLETOP GAMES

Tabletop games are games that are played on tabletops or other flat surfaces. Now there's a difficult definition to remember!

THE TEACHER AS GAME MASTER

You are the Game Master of the class you design as a game.

The first use of the title and role of Game Master was in the play-by-mail version of *Diplomacy*, originally a board game designed by Allan B. Calhmer and released commercially in 1959. It was the first commercial play-by-mail game, chess having fallen out of copyright sometime (centuries!) earlier. In the play-by-mail version, Game Masters guided the game's negotiation phases where players formed and broke alliances as they attempted to conquer and control European countries.

It is important to understand that Game Master and game designer are not synonymous. A teacher need not be a game designer to be a Game Master, but, in most cases, must be the Game Master. Just as you are in charge of the development, you continue to be in charge in the classroom.

Not everybody has the talent or the skill set to be a game designer. Like any number of other creative endeavors such as writing, painting, playing a musical instrument, or teaching, game design demands a particular set of skills that hopefully work the magic necessary to create an engaging experience for your audience.

Luckily, you're already practicing some of the skills necessary to be a Game Master. Read the Game Master definition in Quest 1 again. Couldn't a teacher's role be defined in a similar way?

Whether or not you will also take on the role of game designer is determined by several factors. Let's see how you answer the following questions.

- **Are you open to new ways of approaching your class material?** You probably will not have made it this far in the book, if you aren't. An open curious mind can take you a long way.
- **Are you a gamer?** We can see from the case studies that this is not essential. Game design shares with teachers an attention for detail, an ability to structure experiences for others, and especially important for a real-world game: to be able to adjust to the day-to-day surprises that come your way.
- **Do you know gamers?** Having a gamer in the family, a spouse, child, or grandparent can be a great resource. How about colleagues in your school? Parents of students? Friends at church? Chances are you are surrounded by gamers of all ages. You may just not know it.
- **Are there students you can ask for advice, or who might be able to help you with the actual design?** This is obviously more likely with high school or college age kids, but these days don't be surprised to find middle schoolers creating games, either with game building programs, or even programming from scratch. It should be obvious, but just in case—it's probably not a good idea to ask students in the class you'll be designing as a game to help with the game design unless, as in my Designing Interactive Characters class, you want them to peek behind the curtain to see the puppeteer at work.

TEACHER (AKA INSTRUCTOR OR EDUCATOR)

A teacher is a person who acts as an organizer, official source for questions regarding rules, arbitrator, and moderator for a class. The role of a teacher in a traditional classroom is to weave students' experience, control the nonstudent aspects of the class, create an environment in which students can interact and learn, and solve any student disputes. The basic role of the teacher is the same in almost all traditional classes, although differing rule sets make the specific duties of the multi-player classroom teacher unique to that system.

- **Are there any game designers on your faculty?** You'll find that game designers find it hard to say no, if a new design challenge presents itself. The chance to see the design in action is a strong pull as well.
- **Are there any game companies in your area?** No, I'm not suggesting you hire a professional game designer. If you have the funds for that, then lucky you! Go for it! But you will find that game developers are conscientious members of your community who may be more than willing to volunteer their time. There are many online who would be prepared to help out, too.
- **Do you want to try it because it sounds like an interesting challenge, your students really need a change, or it just sounds fun?** You're in luck. As the case studies in this book show, a lot of your fellow teachers are giving it a shot, and having a pretty good time doing it, too! Again, teachers online are a great resource. Look for websites, blogs, YouTube Channels, or podcasts focusing on game-based learning or gamification.

Whether you have a team to help you, someone to bounce ideas off, or you're striking out into the wilderness on your own, it's time to get your game on.

PREPRODUCTION

There are two topics to cover first in preproduction: how much time will it take to design a multiplayer classroom and what sort of team, if any, you will need to assemble. Let's look at time first. Part of preproduction is putting together a development schedule, complete with milestones.

The work delivered by a milestone is called a *deliverable*. If you're comfortable with a spreadsheet, use one. A 3-month development cycle of a complete multiplayer classroom might look something like Table 12.1. Otherwise, a To-Do list will work just as well. All you are looking for is a schedule to keep the development process on track. Do as much or as little as you think necessary.

Whether you use the waterfall model or agile development, having enough lead time (as we call it in television) is essential. You know how fast you usually can work on a lesson plan or syllabus, but if game design is new to you, as it will be to many who read this book, allow extra time.

I work on my own. It took me approximately a month to put together a design I thought was workable for the first multiplayer classroom. Even then, as you've seen throughout this book, I don't get everything right by a long shot. I still don't have everything right!

MILESTONES

Milestones are significant points in the development process marked by the completion of a certain amount of work. (Bob Bates, *Game Design*)

TABLE 12.1 Three-Month Development Cycle

Date	Milestone	Assets	Personnel	Technology
June 1	Begin preproduction	N/A	Designer	Word processor, whiteboard, pencil, paper
June 21	First draft of design	Paper design document, Wiki, Google docs ^a	Designer, document manager ^b	Internet access ^c
July 1	Begin review period ^d			
July 14	Production draft of design	Paper design document, Wiki, Google docs ^a	Designer, document manager ^b	Internet access ^c
July 15	Begin production	Physical spaces, props, rewards, social networking resources ^c	Designer, artists ^f	Markers, poster boards, GPS, computer, etc.
July 31	Production complete	All assets necessary for the game, or surrogates	Designer	Any technologies needed to play the game
August 1	Alpha testing	All assets necessary for the game, or surrogates	Designer, testers to play the game	Any technologies needed to play the game
August 15	Beta testing	All assets necessary for the game	Designer, testers to play the game	Any technologies needed to play the game
August 30	Golden master (First day of class)	All assets necessary for the game	Designer, students to play the game	Any technologies needed to play the game

^a Only necessary if design is a collaborative effort.

^b If it is a collaborative effort, you'll want to concentrate on design, not paper shuffling. There are a lot of students of all ages out there who can do this.

^c Only necessary if document is not paper.

^d Show the design to colleagues, friends, or family for their thoughts.

^e Facebook, Twitter, and so on, if needed.

^f One or more to create props; set up Facebook page, and so on, if needed.

To keep things simple, let's say your first class will be on September 1. Start as early as you can in the summer. Do as much work as you think you need, then providing you have the luxury of time, shove everything into a drawer for a while, and let it simmer. Useful editing can occur at three moments in the writing process. The earliest is *as* you write for the first time. As I said in *Character Development and Storytelling for Games*, "the moment I begin transferring thought to page I'm already polishing it." Allow this instantaneous editing to happen, but don't wait for it. Best is finding the right idea immediately. Better is finding it later. Worst is counting paper clips, waiting for it to happen. Even if you know you haven't

figured out a design issue, or even a correct way of expressing it, put *something* down as a placeholder, even an explicit placeholder if necessary, like [**leaderboard construction goes here!**]. Otherwise, you run the risk of forgetting there was an issue, and that could come back to haunt you. Even better, upon consideration, you may decide you had it all along.

The second point of optimum editing happens after you've come to a natural break. This may be a sentence, a paragraph, a section, or whatever. Your creative mind pauses, reflects. A better idea, or a clearer way of expressing the original idea, may occur. But again, don't wait. Write on.

A lot of people do a read through the moment they've finished a story or dissertation or game design document. If you have the time, resist the impulse. Put it down, walk away, and do something else, something not so cerebral perhaps. Allow time to start to forget the minutiae of the work. Then, when you're ready and under no stress, go back and revisit what you've created. See it anew. This reading will not only generate new ideas but also magically reveal typos you were blind to before.

Do you think you'll need more time than, say, winter break? Don't try and rush into this second semester. Let it simmer until the summer and then dive in. [**Horrendous mixed metaphor! I know!**]

Time is also dependent upon team size. If you've decided to strike out on your own, fine. But if you do bring in a designer or artist or some other help, allow for their time as well. They know how fast they work. Fit that into your development schedule. And this brings up another important point I cannot stress enough: If you don't trust the people you've asked to do what you believe they do well, and still want to do it on your own, you're trusting yourself at the same time you aren't trusting yourself. That does parse. Just think like Moëbius. Put more simply: you're the teacher. Concentrate on that job. Let your game designer do their job.

Let's assume you're doing it on your own. If you aren't, it's nice to know what everybody else is doing. Here's where you start.

BEGIN WITH THE THEME

Find a theme. The theme may change as you design. Adjustments will almost assuredly need to be made. But everything begins with a theme. And once you've found it, be true to it.

Your theme must be understood. There are two parts to writing, to game design—and even to teaching—creation and delivery. The best book/game/class ever envisioned is lost, if you do not reach your audience. And you must take every opportunity to reinforce that theme. The more you reinforce it, the stronger it becomes until it takes on the force of inevitability. That is something students will remember.

THEME

A theme is the central idea or message of a meaningful creation around which all else is built.

For example, the central theme for my “Designing Interactive Characters for Digital Games” class was this: “No matter how far removed from real life the characters we create may seem to be, they must always be constructed with the truth of reality at their core.” If our characters act in a totally incomprehensible manner, with no handles that we human beings can grab on to, they destroy our willing suspension of disbelief, our ability to empathize, and therefore our interest.

How did I reinforce this theme in that class? By the scouting expeditions where the students must observe and interact with real people, asking students to revisit and refine their characters the more they learn about human behavior, and questioning how their characters react to the challenges they face in the world. Were the decisions made by the players after the debate over giving blood to the witch to save the snow leopard honest? Was it true to their characters? Or must their characters be adjusted?

Let’s take another class: Poetry 101. The theme might be “Learning to understand and appreciate poetry is an essential component of a full, well-rounded and happy life even in a world obsessed with STEM (Science, Technology, Engineering and Math).” At this point in the first edition I had a note explaining the acronym STEM, but our society has become so obsessed with STEM, I expect it’s unnecessary.

The knee-jerk reaction to the United States losing ground to other countries in STEM areas seems to be to concentrate solely on them, cutting deeply into funding for the arts and humanities. The Department of Labor named fourteen sectors “projected to add substantial numbers of new jobs to the economy or affect the growth of other industries or are being transformed by technology and innovation requiring new sets of skills for workers.” None of them include a hint of music or literature or a foreign language.

Teachers are an endangered species who recognize utility and beauty cannot be at war with one another, if our civilization is to truly advance. The idea of using techniques taken from the most technology-heavy claim to art we currently have, video games, may seem ironic, even subversive, but games and gamification are everywhere. And they well may be the Trojan Horse that can sneak art and humanities back into the walled fortress from which they are so often misguidedly excluded.

The previous two paragraphs are not simply a tirade against the trend they condemn, but an example of another important aspect of theme: it need not be universal, or all-inclusive, but you should believe in it.

THE GAME’S STORY

Let’s say you are teaching Poetry 101. How could this theme for Poetry 101 be reinforced? Not through diatribes like those same two paragraphs above, as part of the coursework. Some of the most brilliant and famous scientists of the past read and wrote poetry.

Ursula K. Le Guin wrote, “Science describes accurately from outside, poetry describes accurately from inside. Science explicates, poetry implicates. Both celebrate what they describe.” This fruitful marriage of art and science was not considered strange in the past. It was common not much more than a century ago. And we still find this union today. In fact, the Euro-Science Open Forum in 2006 celebrated a Science Meets Poetry Day in Munich, Germany. The day celebrated the complex personality of Ludwig II, the Visionary King of Bavaria. The celebration was such a success that the idea was expanded to an entire event devoted to science and poetry during the Euro-Science Open Forum in Barcelona, Spain. The tradition continues today.

Your Classroom

Factual stories like that one could easily be woven through the class to support the theme. Or how about this? A game story could be built challenging students to uncover two secret societies intent on protecting, on the one hand, science, and on the other, art throughout the centuries. Arcane clues could be discovered in poems; strange connections between rhyming couplets and mathematical theories could emerge. And the ultimate realization for the class might be that a combination of the two could be the key to saving our civilization. Best-selling books and blockbuster movies are built upon similar foundations all the time. Why not a multiplayer classroom?

I am often asked how I come up with my ideas for stories and games. Inspiration comes from as wide a source as the universe. But that doesn't always mean we can recognize it. Write down some ideas for ways you could use games to teach poetry. Write down all of them, no matter how silly. (As you can see, I do.) Next, roll each one around in your mind. Try out your ideas on friends, colleagues, and family members. This will often lead to impromptu brainstorming sessions where your idea will spark one of theirs. And their resulting thought could inspire or focus your thoughts.

While this process is in motion, consider the German architect, Ludwig Mies van der Rohe. Mies is another example of art and technology working in concert. Have a look at the Barcelona Pavilion designed by Mies. It was built for the official opening of the German section of the 1929 International Exposition in Barcelona, Spain. Meant to be temporary, the building was demolished less than a year after it was constructed. Happily, a group of Spanish architects rebuilt the Barcelona Pavilion from Mies' original plans and black-and-white photographs.

Looking at the simplicity of line and form, it should not come as a surprise that Mies is credited with the famous aphorism, “Less is More.” Keep this phrase in mind as you design. Be aware of scope. A common mistake students in my design classes often make is to overestimate their talents and to underestimate the passage of time. Even supposed professionals end up cutting and cutting some more to complete their games. Rein yourself in during preproduction. It is far simpler, and less painful, than stripping away some of your best ideas because they are too extravagant to be realized.

Your Classroom

Look around your classroom and your office, if your school is smart enough to give you one. What is already there that you can incorporate? Have a look at Denishia Buchanan’s biology class, the first case study in the appendix where the skeleton, Princess Sodabottle, and two turtles became quest givers. For two mid-term preps, a hat I had on a hook by my office door became the centerpiece of the competition.

The more your classroom becomes the world of the game, the more immersed your players will be in the experience. Find opportunities to incorporate the language and trappings of games every day. And remember there is that entire world outside the room where you teach that can be reached through a computer, books, even the classroom door.

We know games are an action medium. Remember when we talked about looking for verbs we can incorporate into a video game? Gameplay is built from verbs such as run, take, climb, buy, shoot, jump, and so on. As you design, focus on what your students will *do*. Remember what happened in Case Study 6 when Melissa Pilakowski started giving her players choices. The more your players get to do, the more they become part of the experience. In a multiplayer classroom, useful verbs to consider are answer, present, write, and so on. And as we saw earlier, these can be translated into defeating mobs, questing, crafting, and so on. The more students are actively participating in the dissemination of knowledge, the better it will be for them and for you.

This quest is not intended to be an exhaustive look at the entire game design process but is rather meant to give you some ideas of how to approach the design of a multiplayer classroom. There are other books that go into game design in much better detail. You will find some suggestions for more reading in Quest 16: Resources.

For now, do not forget one important fact. The multiplayer classroom occurs in real time in the real world. That means that your game design is not done now. Nor will it be done when you've produced all the necessary assets for your game to be played. Designing the game will not end until the last day of the game itself.

QUEST 12 WALKTHROUGH

- Always be prepared to adjust and even improvise when needed.
- The roles of Game Master and teacher are surprisingly similar.
- Check the internet, your community, your library, your school, and your family for interested collaborators. Gamers are everywhere!
- Design and develop the multiplayer classroom over the summer if at all possible, to have as much time as possible before the class is to begin.
- Even if you know you haven't figured out a design issue, or even a correct way of expressing it, put *something* down as a placeholder.
- Edit at least three times: as you design as you write; after you've come to a natural break such as a sentence, a paragraph, or a section; and allow yourself time to start to forget the minutiae of the work. Then, when you're ready and under no stress, go back and revisit what you've created. See it anew. This reading will not only generate new ideas but also magically reveal typos you were blind to before.
- If you collaborate, concentrate on what you do well and let the others do their jobs. There's a reason you asked them for help.
- Begin with a theme for the class.
- Be aware of scope.
- Look around your classroom. What is there that can be incorporated into the game?
- As you design, focus on what your students will *do*.

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Production

QUEST 12 REVEALED THE FIRST HALF OF THE DEVELOPMENT SCHEDULE. Up until now, it's all been about getting our thoughts in order, putting them down on paper, and if necessary, assembling the team. Now it's time to roll up our sleeves and get our hands dirty. That should be easy as we look at *Adventures in Gardening: The Game*, an entirely fictitious educational experience.

But first, I want to issue a disclaimer. Multiplayer classrooms come in all shapes and sizes. Luckily, not every game you design will need the amount of preparation that goes into a video game. Video games come in all shapes and sizes, too. I've written several game design documents that were hundreds of pages long. I've also written game design documents that were under a hundred pages, and some even shorter than that.

Your Classroom

While it is better to err on the side of too much preparation, particularly the first time, you can run the risk of overwhelming yourself with the project. You don't want to get so caught up in the details so that the big picture gets lost. I find designing classes as games to not only be rewarding, but also much more fun to teach. Find an amount of detail and structure in the design and development process that you are comfortable pursuing and go with it. If you don't have fun, your students will not have fun.

Keep that in mind as we dig into the production of *Adventures in Gardening* (see Figure 13.1). (And that will be the last gardening pun in this quest, I promise.)



FIGURE 13.1 Adventures in Gardening classroom.

PREP

Here’s a checklist of some preliminary notes you might make before the actual design process begins.

- **Proposal** to Flower Valley Community College Adult Education for “Gardening—Beginner Level.”
 - This is the third time teaching this class, but I informed them I wanted to do it as a game.
 - Idea was approved with some skepticism, in particular whether adults “would take to the idea.” Other comments: “might be fun” and “was worth a try.”
- **Identify audience**
 - Adult residents of Flower Valley
 - Male and Female

- Ages 35–105
- Facilities at the Flower Valley Community Center include two PCs with internet access and several residents have had some experience with video games.
- **Class size**
 - 15 registered
 - 11 women and 3 men (ages 45–82)
- **Class time:** 3–4 p.m. MWF for 8 weeks
 - Since some of the older students tire easily, the course has been divided into three short segments of 1 hour each per week instead of two classes of 1½ hour each
 - Course will run for 8 weeks with a final garden party and show 1 month later to see how the garden has grown. Other Flower Valley residents will be invited to this event as well.
- **Classroom:** Flower Valley Garden Center
 - Three miles from the Flower Valley Community Center. The center will provide transportation in their bus for older students who no longer drive.
 - Garden Center will donate the use of garden space and used tools with a nominal charge of \$15 for all seeds, pots, soil, etc. (Note to scout out garden center for possible awards and quest givers.)
 - Additional costs, including refreshments at the garden party and show absorbed by Flower Valley Community College Adult Education Program.

DESIGN

Now you're ready to begin your design. What will the students experience during each class period?

- Lesson Plan
 - First Week
 - Explanation of the game and distribution of game rules
 - Introduction to untilled garden space
 - Missions (Quests)

- Research the best ways to lay out a flower garden
 - Plan a garden for all five guilds
 - Lay out five plots
 - Prepare plots
 - Plant first seeds and/or bulbs
 - Take pictures and post them
- Second Week
 - Missions
 - Research families and types of flowers
 - Annuals, perennials, etc.
 - Lilies, geraniums, etc.
 - Players present research to class
 - Plant second seeds and/or bulbs
- Third Week
 - First rewards (gloves?)
 - Missions
 - Research
 - Presentations
 - Plant seeds and/or bulbs
 - Visit outstanding nearby garden?
- Weeks four through eight continue as above
- Decided to limit game terminology to a few easily understood concepts:
 - Game Master (they need to know who is boss!)
 - Leveling up

- Guilds and guild missions
- Solo missions
- Achievements
- Scouting expeditions (visiting local gardens)
- Players will level up by completing major assignments, growing a series of flowers, each one a bit more difficulty to care for.
 - Players can choose among several flowers to grow at each level
 - Players can only plant one flower per class
 - If a player's flower hasn't sprouted (is showing above the soil), that player cannot advance to the next level, but can plant more flowers at their current level
 - Total number of flower species possible in 8 weeks: 24
- Players will divide into five guilds of three people each. Each guild should have a mix of ages.
 - To help one another
 - Differing levels of expertise
 - Care for another guild member's plants, if that guild member is unable to attend a class
 - To win additional prizes
- Players will gain rewards for achievements as the class progresses.
 - Pictures will be taken to display on the community center bulletin board of players planting and caring for their flowers.
 - Players would receive their own new tools at certain levels.
 - Gloves
 - Trowels
 - Hand rakes

- Players will receive their choice of decorative pots as rewards for precise watering and choosing the correct mulch.
- At the final garden party and show players will get to choose their favorite flowers, whether they grew them, or someone else, to be potted and given to them for their homes. Other residents will be able to attend the show, vote on their favorites, and purchase flowers for their own rooms.
- Special prizes are awarded at the garden party:
 - The player whose flowers are chosen more than any others by class members wins a prize.
 - The player whose flowers are chosen more than any others wins a prize.
 - The player who leveled the farthest by successfully growing the largest number of plants wins a prize.
 - The guild whose flowers are chosen more than any others by class members wins a prize.
 - The guild that leveled the highest wins a prize.
 - The admiration and support from the garden party guests is of course the best prize by far.

Whew! The gardeners among you will have realized I know nothing about gardening. I had the luxury of making things up as I went along. So do not copy precisely the above for your planned gardening class, or the flowers will probably never grow. But you should now have an idea of the size of that raft of ducks you need to line up before production begins. Of course, more ducks may be added, too. And yes, the collective noun for “ducks in the water” is a “raft.” You really don’t want to line up ducks once they are in the air. They are hard to net, and they’ll usually line up on their own.

One idea that is important to consider when designing a multiplayer classroom are the types of reinforcement called the *variable ratio schedule* and the *variable interval schedule*. These are concepts long known to game designers, filmmakers, and book authors, even if they didn’t always know the terms for what they were doing.

VARIABLE RATIO SCHEDULE

A conditioning technique where responses to an action are of unpredictable amounts. In a video game, this means that defeating one bandit may result in the reward of a single coin, yet defeating a second bandit may result in the reward of three coins.

VARIABLE INTERVAL SCHEDULE

A conditioning technique where responses to an action may occur at unpredictable times. In a video game, this could mean that a mob will not spawn (appear) at noon every Thursday.

Research suggests that if a player knows exactly when to expect an event, and precisely what the result of that event will be, they will lose interest. But if they are kept wondering, they remain engaged longer. This is not only a mental trait. The same behavior can also be observed in exercise regimens. If an exercise routine never varies, the body will adjust, and the effect will be lessened. Horror films use these techniques to keep their audience off balance. Book authors vary how they tell their stories.

When I teach writing, I emphasize the need to vary the rhythm of the language I use. Every word in a sentence should not be two syllables. Every sentence should not be precisely the same length. Every paragraph should not have three sentences in it. Otherwise, a monotonous rhythm sets in, and the reader loses interest.

When creating a design similar to the one above, be careful to mix things up. Do not do exactly the same thing in the same way at the same time over and over. That's why I added scouting expeditions in "Designing Interactive Characters" and visiting successful gardens in *Adventures in Gardening*. Visiting the gardens will also act as inspiration and encouragement, which is, of course, an added intrinsic benefit.

COLLECTING ASSETS

The design is ready to go. Let's continue this as a solo quest. While you may need an employee of the Flower Valley Garden Center to assist—and you'll certainly need a bus driver—you will handle all game production.

Read through the design. Make a list of all the elements needed to create the game you want to make. That list could be in any order. It might seem best to follow the order in which the elements appear in the design document. Another approach would be to break the design into sections based on the type of activity, or where they will take place.

Select the flowers your class can choose to plant (Figure 13.2). Divide them into levels based on difficulty to nurture, suitability for your geographical area, etc. Write and print precise instructions for the type of soil, mix of sun and shade, appropriate fertilizer, watering schedule, and so on, for them to flourish. It isn't your intent to hide the correct answers to puzzles as some games might do. You want to give your players every opportunity to succeed.

What is the garden center providing? A space for the garden. Establish that the three players in wheelchairs can access their plots easily. Determine that the space is suitable for



FIGURE 13.2 Bloomin' rewards.

five separate, appropriately sized guild plots of land that can be subdivided into individual plots for each player. Ascertain that there are enough hoses. Players may need to share. Collect the used tools the garden center is donating, making sure they are in working order, and that you have enough for every member of the class.

Decide on the awards and prizes. Will you need to purchase ribbons? Plan shopping trips. And this bears repeating: remember to ask every store in your community that you visit, if they would be willing to contribute to the game, instead of simply selling you what you need. I was absolutely astounded when during the second *Skeleton Chase* game a restaurant gave us all of the pizza and sodas we needed for dozens of players for free. They were a new restaurant and understood that the word of mouth created by their generosity would be the best advertisement among the campus population. Even big chain stores gave us coupons as soon as we asked.

You may have to buy a prop or two, or an award or two, but in the end, you will realize that multiplayer classroom games cost very little to produce, especially when compared with video games.

ALPHA TESTING

Once you've collected everything you will need, or at least have fabricated placeholders, you are ready for Alpha. You may not have access to the garden space as yet. You may not want to disturb it until the real class arrives. Find another spot. Or even create your garden on paper. You are testing gameplay here, not the real experience. You will also not need as many testers as you will ultimately have players. There is no rule of thumb for how many testers you may need. The number is greater than one, but may be as few as three (one guild's membership for Adventures in Gardening).

If your testers do not exactly match the demographics of your players, you will need to study how they play, and try to translate their behavior to more closely to match your players. If you use your kids, be careful. They know games. They will take shortcuts that the members of the Flower Valley Community Center may not be able to make.

When your testers are assembled, explain the rules of the game to them exactly as you will when facing your players. You will be tempted to give hints or guide their gameplay. Resist this! Lock your ego and your emotions away in a safe place during testing. I worked on a game that cost millions of dollars to make, but the focus groups testing it had difficulty—they were not listened to. The designers were confident they knew better. The game was barely released, and a major company lost millions of dollars.

Instead take careful notes and then survey your testers after the gameplay session ends concerning obstacles they encountered in how the game was designed. Find out what they thought was too hard or too easy and what gave them the most satisfaction, or enjoyment. Then go back to the drawing board, adjust your design, and produce or acquire new assets. And test again. Test as much as you can, even a second Alpha test will be helpful.

BETA TESTING

The last testing period is Beta. Now there are no more placeholders, and the testing conditions should be as close as possible to how your players will experience the game. Add this to everything already discussed during Alpha testing. It still applies. Make any changes, but they should be incremental at this point, not massive.

Beta testing done? Guess what, you're ready for the Golden Master, the finished version of the game. You're ready for your first day of class. Keep your eye on your ultimate goal—what you want to achieve by the end of the course—and dive in and reap the rewards (Figure 13.3).



FIGURE 13.3 An intrinsic reward at the end of the Adventures in Gardening class.

QUEST 13 WALKTHROUGH

- Employ variable ratio and variable interval schedules
- Do not hide the correct answers to puzzles as some games might do. You want to give your players every opportunity to succeed.
- Remember to ask every store in your community that you visit, if they would be willing to contribute to the game, instead of simply selling you what you need
- When you reach Alpha, it's time to test your game
- Explain the rules of the game to your players exactly as you will when facing your players
- Resist the temptation to give hints or guide tester gameplay. Your testers are not “playing the game wrong.” If they are failing to play “correctly,” it is your design that is at fault, not their behavior. Adjust it.
- Take notes as you watch testers play, then survey your testers to get their reactions to the experience
- Once Beta is reached, changes should be incremental, not massive

SECTION 4

After the Launch



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Playing the Game

IT'S OPENING DAY. THE stands are packed with screaming fans. Or, more likely, you're facing a sea of skeptical faces. Or even more likely, you're confronted with the tops of two or three dozen heads, as students surf, text, and twit, never having noticed you entered the room. Never fear, if you've gone through the extensive prep I know you have, you are ready to launch your surprise attack on an unsuspecting populace. For them, there will be no defense.

"Welcome to the class." Say it softly. Sneak it up on them. Now, loud and proud: "You all have an F." Tops of heads are suddenly replaced by faces. Confused, even outraged, looks are exchanged. "However, you will be able to level up by killing mobs, questing, and crafting." The confusion and outrage are gone in an instant. You see something new in their eyes: determination. And a challenge: bring it on. You've hit the Power On button (Figure 14.1). They are in your world now. The game is afoot.

Whether you distribute a syllabus, or simply begin to describe the game they will be playing, there are three points that must be clear: two are metagame and one is within the game.

- **Metagame:** Even though this class has been designed as a game, to win it, they must acquire knowledge. And the extent of their learning will be reflected in their final level.
- **Metagame:** Explain the rules. And change them only at your peril. More on this in a moment.
- **Game:** Introduce them to the lore.



FIGURE 14.1 Pressing the Power On button.

LORE

The game you've designed does not need extensive lore. It may be enough to explain what you mean by defeating mobs, questing, and crafting. But we have only touched the surface of the power of narrative in creating immersion in the multiplayer classroom. As you saw in Quest 6 and beyond, some of my classes are set in fictional worlds. The players are on a quest within those worlds. That quest is directly tied to coursework. The extra game elements, and how they are connected to student performance, became additional motivators.

It's up to you. Are you somebody who slowly eases into the shallow end of the pool? Or do you dive into the deep end? Both of the approaches work. Choose the one that is most comfortable. As I tell educators in my talks, if the only thing you change is to start rewarding students for coming to class instead of punishing them when they don't show up, you will see a noticeable boost in attendance. It's an easy win. If they do not come to class, they cannot learn.

LORE

Lore involves the backstory of the game—everything that has happened up until now.

If you do choose to expand the lore, make sure that it is an integral part of the design and development of the game. Just as you look for every opportunity to translate coursework into gameplay, search out opportunities to reinforce the lore wherever possible.

By the same token, don't try to force lore or game conventions on elements where you can't make them work. There is a very real danger of obscuring content with the mechanism by which you've chosen to deliver it. Watch how your students fall into this trap when they do their quest presentations.

If you choose to allow your students to present class material, your role as an active Game Master is essential. I will interrupt student presentations, asking for definitions, challenging their assumptions, and clarifying important points. These are meant to be quests after all. And quests are designed as a string of obstacles players must overcome.

So, by all means go for as many trappings of an actual game with which you feel comfortable. Keep your balance. One of the primary challenges in game design is balance. It shows up everywhere from the power of the player vs. adversaries to the difficulty of puzzles to the balance between story and gameplay. It can be the difference between hitting a homerun and striking out. Maintain balance in all elements of your multiplayer classroom.

RULES

Rules for playing the game are as obvious a part of the design as the rules that govern our classrooms. Some come to us from government or the institution for which we work. Others we create. Students expect rules. They want rules, no matter how much they may complain or test them. Whether written down formally in a rubric, or not, they want rules that are clearly stated.

Remember the midterm prep guild PvP in the Designing Interactive Characters class? I changed the rules on the fly. Because the students were involved in the decision, the change was accepted. They are never too far from concern about their academic progress. But if they are invested in the game, and understand that sometimes adjustments must be made, the situation is very much like on the playground when kickball boundaries need to be adjusted, or when classes must be postponed on snow days. They are used to it. And in the latter example, they probably won't mind it at all.

SCORING

Maybe it's just me, but I find grading papers to be one of the least appealing chores teachers face. Yet, depending upon how you've designed your game, it becomes even more important. Players expect video games to provide a running tally of their progress. Whether you use a leaderboard, or rely simply on a level and XP table in the syllabus, your students will want to know where they stand. Therefore, and this is the task I was worst at for quite a while, you cannot put off your grading. (I got better!)

Particularly in classes designed with an ongoing narrative, how students do on their assignments will affect that narrative. New pronouncements from the mysterious being who has summoned their avatars to the tower in Valeria or the revolution in Costa Niebla should not be held up until grades from certain assignments are in. Even without that explicit tie between performance and story, it's imperative to emulate as much as possible the reward system of a video game. We can't match it precisely because in a video game the tally is immediate, but we must try to be as responsive as possible to their achievements.

A couple of the case studies in this book describe how accomplishments are announced regularly, say before the beginning of each class. This is exactly right. Your gamers expect it.

STAYING FLEXIBLE

Rules aren't the only thing that will change during the course of the class. Outside forces are capricious. Weather doesn't care that you're supposed to teach on a certain day. Snow will fall regardless. The flu can sideline large numbers of players all at once. Quest presentations may run long. Even positive occurrences, such as a prominent visitor in your field who has stopped by unexpectedly, can throw off your carefully constructed schedule.

The first two *Skeleton Chase* ARGs at Indiana University were designed to improve health and fitness in the students who played (Figure 14.2). The third iteration, *Skeleton*



FIGURE 14.2 Rain falls on the climactic night of the first *Skeleton Chase* ARG.

Chase: Warp Speed, reduced the playing time from 7 weeks to 2½ days. The players were now corporate executives. The goals of the game were team building and introducing them to new technologies. These executives on the whole were not all that keen about physical exercise, so much of the gameplay had to be reinvented on the spot.

The multiplayer classroom is the real world in real time. Stuff happens. During our first running of *The Skeleton Chase* we had received permission from the IU Student Union to use a boardroom high up in the tower. We created a lair for one of the game's characters, a demented graduate student who was squatting there illegally. One intricate puzzle took players all over campus until they reached the room and discovered the props we'd arranged there to indicate he was camping out in the room: a sleeping bag, fast-food wrappers, and five empty liquor bottles that figured in another puzzle, as well as echoing what they were learning in class that week about addiction.

A few hours after the puzzle went live our "Game Central" hotline, manned during the set times every day that the game was running, received a phone call from the first team to find the boardroom. Unfortunately there was no indication of the lair they had expected to find there. The Game Master on duty, Elizabeth, confirmed the props were indeed missing (the team of players had wandered off by then), and contacted the Student Union office to learn that they had neglected to notify the janitorial staff of our game. Elizabeth hurried to the union and, guided by the office, tracked down the janitor responsible for cleaning the room. Luckily, he still had all our carefully collected props in a bag on his cart.

But he thought the young woman wanting them returned was in fact the drunken squatter living there! Elizabeth finally managed to convince him that it was all for a game, and that it had been cleared by the Student Union in advance. He finally handed over the bagful of props, still somewhat suspicious. She restaged the boardroom, returned to the office we were using as Game Central, and called the players to let them know that the bug was fixed and the game was rebooted. They were now free to visit the lair.

Elan Lee, one of the team behind *Exploding Kittens*, was a founder of 42 Entertainment, creators of some of the most famous ARGs such as *The Beast* (a promotion for the Steven Spielberg film *A.I. Artificial Intelligence*) and *i love bees* (a promotion for the video game *Halo 2*). He has dozens of stories to tell about designing and redesigning on the fly. One of my favorites involves a device that players were required to build. The plan was that a number of pieces of this device would be scattered around the world, and one would even be buried in Antarctica during the winter. Since that piece, necessary to complete the device, could not be recovered for several months, designers felt they would have plenty of time to refine their design for the rest of the game and get way ahead of their players.

Unfortunately, the players contacted a scientist based near the coordinates where the object was buried. She was able to find it and sent a perfect electronic plan of the piece to the players so that they could use a 3D printer to create a duplicate of the piece and

complete the device's construction months too soon. Imagine the flexibility and frantic scrambling that were induced in the designers.

Hopefully you will never have to do that much running around or explain your drinking habits. You will discover however that no matter how well you've planned and tested, tweaking will be necessary. I would guess you've faced similar situations—for example, when students have challenged a test question—so don't worry too much about it. Just be prepared. It will happen.

The key is to be flexible. Expect the unexpected. Modify. Fine-tune. Have a backup plan, if possible. But even if you don't, be prepared to be creative in real time as all of those expectant, engaged players stare at you. For me, these are some of the most invigorating design challenges I've faced. And I firmly believe that if you've done your homework up front, you know the game better than anyone in that classroom. You will find an answer that may be even better than what you had originally planned.

POSTMORTEM

Yes, believe it or not, it's true, the class is almost over. Now comes your opportunity to listen and learn. Video game developers have borrowed a term from forensic pathology to describe this final step in the life of a game: the postmortem. The game was released. Players have played it and reacted. Critics have weighed in. Sales trends are clear. All that remains is reflection.

Decisions that were made are re-examined. Results are appraised. And the canny game designer is the one who learns from the past in order to do better in the future. I'm willing to bet you may want to design another class as a game, or at least repeat the one just completed. The experience hopefully has been as much fun for you as it has been for me.

My last day of class has always been a postmortem. I take a pen and a pad of paper, and I ask the students to weigh in on their experience. You've seen the results of this throughout the stories of multiplayer classrooms that I've shared with you. I've learned more from these postmortems than I did from the formal teacher evaluation sheets the student filled out. Some of their suggestions worked well; some not so well. But all were worth considering, because they came from my players.

You will probably have specific questions of your own. Did you like the awards? Were the quest presentations fun to do? Do you think you learned as much from presentations given by your peers, as you would have from a teacher?

One more thought concerning game balance. I was surprised that a number of students in a couple of classes, while they enjoyed the presentations of their peers, wanted to hear more from me: the expert in the room. So I adjusted and became more proactive during presentations, asking questions, filling in the blanks.

I would not have had the knowledge to make that modification without a postmortem (Figure 14.3). I have mentioned it before and I commend it to you. Students can be less



FIGURE 14.3 Feedback from the players.

than diplomatic at times. Don't let that dissuade you. Explain what your intent was, ask questions to clarify their suggestions, but don't try to argue your side. This isn't a debate. Defend your choices, and they will stop critiquing, but you will stop learning.

As I mentioned way back in Quest 1 there are three acts to a chess game: opening, middle game, and endgame. Our board is almost cleared of pieces. The story of the game is almost through. All that remains are a peek at possible futures, and some resources to help you create your own multiplayer classroom.

QUEST 14 WALKTHROUGH

- Maintain balance in all elements of a multiplayer classroom
- Students expect rules. They want rules, no matter how much they may complain or test them. Whether written down formally in a rubric, or not, they want rules that are clearly stated. (Fundamental Concept)
- Players expect video games to provide a running tally of their progress.
- Stay flexible. No elements of a multiplayer classroom should be chiseled in stone. Stuff happens. Expect the unexpected. Modify. Fine-tune. Have a backup plan, if possible.
- Conduct a postmortem. (Fundamental Concept)
- Listen to the players. Don't try to argue with them. A postmortem isn't a debate. It's a learning experience.



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SECTION 5

After This Book



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Designing the Future

SINCE THE FIRST EDITION of this book was published there has been a lot of mention of the gamification of society in the media. The multiplayer classroom existed before that word came to mean something of what it does today. And I began to write this story about the multiplayer classroom before I had ever heard the word. But the fact that the ideas of levels and points and yes, phat l00t, are now deluging us like a perfect storm, is no coincidence. The gamer generation after all stretches from young children to those elder adults like me called Boomers. It should be no surprise to anyone that gamification has been co-opted by sales and marketing.

Way back in Quest 2—when we looked at *Quest to Learn*—I mentioned that in the first edition of this book I learned of an idea being explored at the Rochester Institute of Technology. It was a pilot program called Just Press Play, funded by a grant from Microsoft. Just Press Play explored the possibility of designing the initial university undergraduate experience as a game. The concept was to incorporate all of the issues new students would face; encourage them to tackle those issues; and reward them when they did.

The focus of a project this large was necessarily technology-based to connect all of its many pieces. Rewards such as achievement levels and collectible cards were also inevitably extrinsic due to the scale of the territory Just Press Play was developed to cover.

This was a wonderfully innovative idea that made great strides in its 2 years of operation, motivating students and confronting key problems such as security and protecting student privacy. A particularly inventive idea was using personal quick response (QR) codes that students could use to track their achievements in categories labeled Create, Learn, Socialize, and Explore (Figures 15.1 and 15.2).



FIGURE 15.1 Personal QR code.



FIGURE 15.2 Achievement categories.

The experiment, completed in 2013 when its funding ended, was watched closely by other institutions. But surprisingly, to date I have not found another university that has attempted such a bold experiment. However, two similar, if smaller scale, K-12 ventures in France and Denmark currently focus on portions of student populations. They are explored here in Case Studies 5 and 8. I hope it's only a matter of time before another school attempts something as ambitious as Just Press Play.

Video game design classes and programs are turning up at universities all over the world. In 2011 I wrote that there were over 250 in the United States alone. That number has now more than doubled. High schools and middle schools are adding video game classes, and even younger students are making games in classes that otherwise have nothing to do with video games (Figure 15.3).

I'm not going to make predictions about whether gamification takes over education, or the world. Or if we'll ever be able to bury that ugly word and stick with game-based education. I wondered in this chapter in the first edition, whether game-based learning was



FIGURE 15.3 The future is a story with no end.

already a bubble about to burst. That certainly hasn't come to pass. I have no idea when or if it will, and I don't really care. As long as attendance is up, as long as grades are up, as long as students who skipped class are now coming early, the multiplayer classroom is not going away anytime soon.

Enough about the past. Let's turn our eyes to the future.

In 2007, my colleague, Ted Castronova, whom I've mentioned before, wrote a provocative book, *Exodus to the Virtual World*. In it he argues that the real world may begin to model its institutions on games because, as Raph Koster, author of *A Theory of Fun* (2004), says, "The general populace finds them more fun." It's a future that Jesse Schell (2010) was rabble-rousing about in his DICE Summit talk. Would our world be a better place if a primary advisor and strategist to our leaders were a game designer? I'm inclined to think so. But then I'm prejudiced.

In a book published in 2011, *Reality Is Broken: Why Games Make Us Better and How They Can Change the World*, Jane McGonigal suggests much the same thing, adding that it is game designers' responsibility to change the world, not just create fictional ones.

In my own book, *Character Development and Storytelling for Games* (2004, 2014), I wrote about game writers and designers, "If we're lucky, we might make something



FIGURE 15.4 A prop from a game, but it can be useful in the real world, too.

more; a game that endures; something fine that we had a part in creating that will touch the hearts and minds of generations unborn. Anything is possible. The important thing is to have the will to try.”

I was attempting to rally my peers and the next generation of writers and designers entering our world to make meaningful games. Now I find myself asking the same questions about our place in the real world. Teaching has encouraged me to look at the real world and designing classrooms as games has made me very aware of the place games are coming to occupy in it.

I don't have any earthshaking pronouncements to match those I cite above. I'll confine myself to one very important cornerstone of the future: our children.

Here in no particular order is how I saw the multiplayer classroom's future in 2011. I used my crystal ball prop (Figure 15.4) from *Skeleton Chase 2: The Psychic* (which should explain partially at least the skeletal hand), but I gazed into its depths and made a few predictions. From 2011: I've written both games and TV shows about psychics. I knew how to operate the thing. Just press the Power On button.

I pushed the button. The skeletal hand vanished ... then the flower ... the crystal ball cleared ... I saw then, and I see now...

- **2011:** Researchers obtaining grants to study the efficacy of the multiplayer classroom.
2019: They may call it game-based learning or gamification, but the research is voluminous.
- **2011:** Research bearing out Marie-Pierre Huguet’s observations in her *Intermezzo*. The benefits are proved to be real, demonstrable, and repeatable.
2019: Check. The benefits are proven, especially if intrinsic rewards are used in addition to extrinsic.
- **2011:** There will be more books examining classes as games.
2019: I’ve mentioned a couple in this book. There are many more.
- **2011:** There will be a backlash against the concept, calling it frivolous and fleeting.
2019: Not as much as I expected. There are still fervent critics. Fewer now that gamers are taking over the world.
- **2011:** Teachers will discover they can use the ideas in this book and elsewhere to design classes on their own.
2019: I have spoken to interested teachers in schools all over the United States and in other countries. I debuted the multiplayer classroom at the first Games 4 Change Europe conference in Valenciennes, France, May 2011.
- **2011:** Classes as games will appear even in remote locations where computers are scarce. As I’ve pointed out more than once: the multiplayer classroom is not expensive or technology-dependent. The cost/value ratio would make an accountant salivate.
2019: As my experiences and those covered in the case studies in this book should prove: the multiplayer classroom costs only as much as a teacher is willing to invest.
- **2011:** Teachers in every country will experiment with better and better versions of the multiplayer classroom.
- **2011 and 2019:** We’re currently only in Beta. The Golden Master will be something very special indeed.

I know. Like I said, not earthshaking. The story is, of course, not over, but this small part of it is now complete. It is not a dissertation or a scholarly tract of any kind. It is simply a story, a chronicle of my experiences and those of others in a growing group of educators who are discovering that games are not only for the very young. We all can learn from them (Figure 15.5). When we do, the child within us can never die. Curiosity and a sense of wonder are what keep us growing and questing.



FIGURE 15.5 The child in each of us must never die.

Thank you for coming along on this quest chain with me.

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- Koster, R. (2004). *A Theory of Fun*. Scottsdale, AZ: Paraglyph Press, (2nd edition 2013). Boston, MA: O'Reilly Media.
- McGonigal, J. (2011). *Reality Is Broken: Why Games Make Us Better and How They Can Change the World*. New York: Penguin Books.
- Schell, J. (2010). *Beyond Facebook: The Future of Pervasive Games*. Design Innovate Communicate Entertain Summit (DICE).
- Sheldon, L. (2004, 2014). *Character Development and Storytelling for Games*. Boston, MA: Cengage Learning.

Resources

HERE IS A LIST of resources guaranteed to prepare you for your dive into the world of games or guaranteed to help you keep your head above water, if you've already splashed down. Some are books on game-based learning, others are how-to books on game design, since we've only dipped our toes in the previous levels here. There are also books on game studies. Other resources are general introductions to what people are up to right now using a wide variety of games in education: a good supplement to Quest 2. You'll also find fascinating glimpses of our future with games in it. Finally there are short lists of prominent game conferences and organizations. This is not meant to be an exhaustive list by any means, but will hopefully help, challenge, and inspire you. All are excellent flotation devices. Take advantage of them! Also check your local continuing education, summer school programs, and libraries. Classes on game design are popping up all over.

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HOW TO SUCCEED IN GAME DESIGN

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APPLIED GAMES (AKA SERIOUS GAMES)

Annetta, Leonard (Ed.). *Serious Educational Games: From Theory to Practice*. Sense Publishers. 2008.

Bergeron, Brian. *Developing Serious Games*. Cengage Learning. 2007.

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RELATED TO GAME DESIGN (GAME DESIGNERS READ THESE BOOKS)

Campbell, Joseph. *The Hero with a Thousand Faces*. New World Library. 2008.

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Bogost, Ian. *Persuasive Games: The Expressive Power of Video Games*. MIT Press. 2010.

Jones, Gerald. *Killing Monsters: Why Children NEED Fantasy, Super Heroes, and Make-Believe Violence*. Basic Books. 2003.

Gee, James Paul. *What Video Games Have to Teach Us about Learning and Literacy*. St. Martin's Griffin. 2007.

Juul, Jesper. *A Casual Revolution*. MIT Press. 2012.

ABOUT THE FUTURE

Castronova, Edward. *Exodus to the Virtual World*. St. Martin's Press. 2007.

McGonigal, Jane. *Reality Is Broken: Why Games Make Us Better and How They Can Change the World*. Penguin Books. 2011.

Schell, Jesse. *Design Outside the Box*, www.ted.com/talks/jesse_schell_when_games_invalidate_real_life.html

CONFERENCES

Connected Learning Summit (<https://connectedlearningsummit.org>)

European Conference on Games Based Learning (www.academic-conferences.org/conferences/ecgbl/)

Game Developers Conference (includes Serious Games Summit) (www.gdconf.com/)

Game Education Summit (www.gameeducationsummit.com/)

Games for Change (www.gamesforchange.org/)

Games for Change Europe (www.g4ceurope.eu/)

Games for Health (www.gamesforhealth.org/)

Irish Conference on Game-Based Learning (www.igbl-conference.com/)

Play Make Learn (<http://playmakelearn.org/>)

Serious Play (seriousplayconf.com)

ORGANIZATIONS

Academy of Interactive Arts & Sciences (www.interactive.org/)

Entertainment Software Association (www.theesa.com/)

Entertainment Software Rating Board (www.esrb.org/)

International Game Developers Association (including the Game Education SIG) (www.igda.org/)

QUEST 16 WALKTHROUGH

- Today there's a world of information out there now to help you design a multiplayer classroom. Have a look.
- If you find some good ones, let me know!

APPENDIX

First Edition Case Studies



Taylor & Francis

Taylor & Francis Group

<http://taylorandfrancis.com>

First Edition Case Study 1

Marked Tree High School

Denishia Buchanan

Biology Teacher

Marked Tree High School

Marked Tree, Arkansas

OUR FIRST CASE STUDY comes from Denishia Buchanan, a biology teacher in Arkansas. She notes that 80% of her students fall below the poverty line and typically do not perform well in school, with many failing to graduate.

An avid gamer, Denishia was a natural when it came to designing a multiplayer classroom. Her leveling system adds an ingenious time element, and her quests are given by special Quest Givers within the classroom, such as the one who consented to pose with her in Figure A1.1.

Her questing system is so successful[md]have a look at the remarkable statistics[md]that she's planning quests for her Anatomy class. And the school's administrators are encouraging other teachers to do the same.

Here is her own quest to reach and teach students more used to struggling than success.

INTRODUCTION

Gaming and education aren't usually two words that go together; however, after reading an article published by *The Chronicle of Higher Education* detailing Lee Sheldon's unique technique of creating a gaming experience for his multiplayer design class, I was intrigued. If pop culture has taught us anything, it's that most teenagers would rather spend more time playing video games than finishing school work. The article explained that Mr. Sheldon



FIGURE A1.1 Denishia Buchanan with one of her Quest Givers: Princess Sodabottle.

uses XP in his class instead of the traditional point system that is used in modern education. His entire classroom is based on popular gaming themes. His classwork is set up like quests that may either be solo'd or completed in a pickup group, as well as having groups of students sit together to form guilds.

Upon reading the article, I began brainstorming on my own version of gaming in the classroom. Being an avid gamer for the majority of my life allowed me to use my personal experiences in various gaming situations to design a high school version of Mr. Sheldon's technique. Beginning in the 2010–2011 school year, three sophomore level biology classes began playing “Biology Quest.”

Students who play “Biology Quest” are required to reach levels of achievement in a certain amount of time. To reach these levels, students must gather XP. Students have various opportunities to obtain these points. For example, level 1 requires 100 XP and has a due date of 1 week. Students are required to quest (complete various assignments) to gain these 100 XP. When the due date arrives, whatever the student has gathered goes into the grade book. For example, Amanda has completed all three section reviews for Chapter 1 worth 10 XP and made a 60 on the Chapter 1 exam. A 70% is recorded for Amanda's level 1 score. As the level requirements increase, students must complete more assignments to achieve at higher levels.

In addition to questing experience, students are also awarded “Biology Bucks.” Each quest is given a monetary value based upon how difficult and what level the quest is. Students use the Biology Bucks to buy classroom supplies and even hall passes to the library or restroom.

Biology Quest is a way of immersing yourself into the discipline. It allows students to expand their knowledge further than a typical classroom would allow. Students are given the freedom to pick and choose assignments that they feel they would perform best at. In Biology Quest, every learning style has the opportunity to shine (Tables A1.1–A1.3).

TABLE A1.1 Levels

Level	XP Required	Time to Complete	Semester
1	100	1 week	Fall
2	200	2 weeks	Fall
3	400	2 weeks	Fall
4	800	4 weeks	Fall
5	1,600	4 weeks	Fall
6	3,200	6 weeks	Spring
7	6,400	6 weeks	Spring
8	12,800	6 weeks	Spring

TABLE A1.2 For the Fall Semester

A	2,760 pts.
B	2,480 pts.
C	2,449 pts.
D	1,872 pts.
F	Below 2,182

TABLE MPC1.3 For the Spring Semester

A	21,696 pts.
B	19,296 pts.
C	16,896 pts.
D	14,496 pts.
F	Below 14,495

QUESTING

Quests are class assignments that students complete for XP and Biology Bucks. Quests are assigned XP based upon how difficult the quest is to complete. In Biology Quest, students are only allowed to complete quests solo. They may help one another, but copying is strictly prohibited.

Quests are provided to students by “quest givers.” These are different inanimate and living objects throughout the room that provide quests to the students. The quest givers are Big Chief Waterwalker, our classroom mascot; Luke and Waylon, the classroom turtles; Oscar the Vile, our very hungry cichlid; and Princess Sodabottle, our recycled plastic skeleton model. Each “quest giver” presents quests to students in a narrative. The narrative explains what is expected on the quest, as well as what rewards will be provided. For example, see the following note.

Quests are provided for the students in two forms. One, all quests are placed in a classroom quest log booklet. This booklet contains quests from every quest giver from level 1 to the current level that students are completing. Second, at the beginning of a new level, all students receive a copy of each quest to put in their own quest log folder. This ensures that all students know what quests are available for the current level.

Quests are designed to reach every skill level and learning style. Each level has quests that appeal to visual learners, auditory learners, and kinesthetic learners. Students complete a survey to determine what learning style they are. They are then challenged to develop skills in learning styles other than the style they were most competent in.

Quests are designed to expand student thinking. Although some quests are small review sections or worksheets, the majority of quests are high-level assignments. Students must create websites, make brochures, write essays, create learning cubes, make models, develop analogies, write rap songs, and several different multimedia projects.

For 25 minutes each day, I teach students the “lore” of biology. This is usually presented as a whole group classroom activity, lecture, or a lab activity. During this time, I present the essential information about the current topic of study. Quests will provide more detailed “lore” through an inquiry process. After this is completed, the students have 20 minutes to quest.

During quest time, students have access to computers. They may use these computers to access the Internet or use programs such as Windows Movie Maker to complete their quests. Students also have access to an extensive craft supply. They may use boxes, Styrofoam balls, clay, markers, colored pencils, and so on, to complete their quests. Students may also leave

IT'S ALL IN THE STRATEGY

Hey man....Waylon just won't listen to me. I've been trying to tell him about k-strategists and r-strategists. He just doesn't listen. This is what I want you to do. I want you to write a children's book about k and r strategist. Explain it in terms that Waylon could understand. After all, he is only 3 years old. Make the book at least 6 pages long. Be sure to include pictures of the different kind of strategists. Waylon always judges a book by its cover, so make the cover SUPER exciting!
50 XP and 5 Bucks

the classroom to do library research. Students must use every minute of quest time on quests. They aren't allowed to sit and look pretty.

Quests must be turned in complete and perfect. If the quest giver requires a project to be colorful and the student turns in the work uncolored, no points will be received. The student must finish the project. If the quest is a worksheet, lab, or bookwork, all questions must be answered to the fullest extent. All essays turned in must follow the English Department's guidelines for sentence structure, paragraph structure, and essay format. If a student fails a Dungeon quest (tests), then the dungeon must be attempted again until they receive a 60%.

REWARD SYSTEM

Students are rewarded for completing quests not only in quest XP but also in Biology Bucks. Biology Bucks are dollars that students can spend within the Biology classroom. In student's quest logs, each quest denotes the XP value, as well as a monetary value. Most quests award \$1–\$20 Biology Bucks, depending on the difficulty and the time required to complete a project. When the quest has been graded and deemed worthy, students will receive the quest back, as well as the Biology Bucks at which the quest was valued. If a student has completed a quest above and beyond the required elements, then extra money is allotted, and the quest gets placed on a wall of fame.

Students may use their Biology Bucks in several ways. First, they may use it at various vendors to buy needed classroom supplies, such as pencils and paper. Second, they may use the money to obtain special hall passes, such as bathroom or library passes. Finally, they may use their money at the Auction House.

I provide the students with two vendors for classroom supplies. The first vendor supplies students with classroom supplies. They may buy one pencil for one Biology Buck. The same is true for paper. A spiral notebook will cost the student \$3 Biology Bucks. A paper folder will only cost \$1. Other items may be rented from the second vendor. Rentable items include Biology Books or Classroom Reference Books. These are rented with a \$5 deposit. When the book is returned, the \$5 of Biology Bucks are returned.

Every 9 weeks students are invited to attend an auction. Auctions are funded by the Science Club through various fundraisers. Auctions are presented to students in two ways: a silent auction and a typical English auction. The silent auction involves big-ticket items that every single questing class can participate in. For instance, in this 9-week period, students are bidding on a \$100 Visa gift card. Students must place their bid for the gift card in a box. After the auction expires, the highest bidder wins the card. The English auction pits students in the same class period in bidding wars vying for various items, including hall passes, coupon books, small gift certificates, lotions, and sprays, as well as food items.

STUDENT OPINIONS

My students are very pleased with this form of class. Students have expressed that knowing exactly how many points are expected of them and offering varying methods of obtaining these points allow them to achieve higher. Several other students said that having a reward at the end of 9 weeks (like our auctions) was great motivation for them to do more work. Students state that they would like other teachers to use this method in their classrooms.

The classes that are not questing complain that it is unfair and that if they had that opportunity when they were in Biology, they would have scored much higher. My advanced placement (AP) Biology class begs me to begin questing with them. Several students have come up to me in the hallway and said that they cannot wait to be in my class so that they can quest.

Because of questing, many students feel more confident in science. A lot of students have told me that they would like to pursue a career in nursing, veterinary medicine, nuclear medicine, and engineering just to name a few. Students feel that when they are given a choice in the type of work they do in classes, they will produce more work with more effort.

DATA ANALYSIS

Marked Tree High School is 80% free and reduced lunch, meaning that 80% of our students fall below the poverty line. Typically, these students do not perform well in school, and many of them fall short of high school graduation. Many students that do make it to graduation do not go on to college. Most never even take their American College Testing (ACT).

In December 2009, 62% of sophomores taking Biology were passing with a D or higher. These students were taking a Biology class taught in the traditional format. In December 2010, 98% of sophomores taking Biology were passing with a D or higher, 36% of which had an A or a B. This is compared to 2009's 10% having an A or a B. The increase in scores is in direct relation to questing.

Each quarter, students must take an End of Course (EoC) Practice Test. Students must score 60% to be considered proficient in Biology. The EoC is a comprehensive test. In October 2009, students were 29% proficient or higher on this exam. In the 2010 administration, 68% were proficient or advanced. At this time, the 2010 students had been questing for 9 weeks. The second administration was given in December. In 2009, students scored 31% proficient or advanced. The results from the 2010 test show that 81% of the students were scoring proficient or advanced.

Not only is questing increasing the percentage of students scoring proficient or advanced, but it is also increasing the number of students that are advanced in Biology. In 2009, only 3% of students were scoring advanced. This year, 55% are scoring advanced.

CONCLUSION

Questing, without a doubt, increases student motivation, student attitude, and student performance. Data proves this fact. Students in my classroom are doing three times the amount of work that students completed in previous years, and they are doing this with joy and without complaint. Work turned in shows that the student has spent time and energy on it. All work shows that the student took pride in completing this work. Allowing students to choose assignments that they feel they are good at provides an atmosphere for students to extend their thinking and dive deeper into a topic than ever before.

Questing has provided an opportunity for my students that they never had before. Through questing, they feel confident in their work. Knowing that they can succeed in a difficult class makes them want to pursue more opportunities within that subject. I have several students who would never have considered taking AP Biology before, and now they have signed up for the class.

My students have asked me to extend questing into other classes. I will do this. I have already begun planning questing assignments for the second semester of my Anatomy class. My administration is seeing our students' performance increase by leaps and bound and because of this is encouraging other core subjects to incorporate this type of learning into their classroom.

REFERENCES

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First Edition Case Study 2

University of Arizona South

Wayne Brent, PhD

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University of Arizona
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Max Lieberman and Connie Hackathorn

*Student in Educational Technology M.S. Program
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Tucson, Arizona*

CASE STUDY 2 INVOLVES a team experience from Wayne Brent, Max Lieberman, and Connie Hackathorn (see Figure A2.1) that is still developing. Following you'll see the second version of the case study that they submitted. So far, they have been successful enough to name their method: "Game Attributes and Mechanics in Education," or GAME. Never discount the advantage of a good acronym!

Students Max Lieberman and Connie Hackathorn were given the assignment of adapting an existing course into a game. They approached this challenge with formal game design methodology, and not surprisingly, introduced technology into the design with great success.

They pared away at an initial complex design so that the game would not overwhelm the learning, retaining achievements, and skill points as core mechanics. Here is the current state of the GAME.



FIGURE A2.1 Connie Hackathorn, Max Lieberman and Wayne Brent.

THE SETUP

In the summer of 2010, we were two then-graduate students at the University of Arizona. We were offered a unique opportunity: help Wayne Brent, a faculty member, adapt his existing graduate course on “Teaching with Technology” into a game. At our disposal, we had our knowledge, enthusiastic support from Dr Brent, and assistance from his department, including limited access to a talented programmer. Despite a short timeframe[md] the course needed to be ready for the following semester[md]we leapt at this chance. The game-based course design which resulted is now in its second semester of use, and our team continues to iterate on our technology and methodology. We call this design “Game Attributes and Mechanics in Education,” or GAME. We are currently making plans to support instructors in other fields who want to adopt the GAME model at the University of Arizona and beyond.

THE TEAM

Wayne Brent, Ph.D., Senior Consultant at the Office of Instruction and Assessment, University of Arizona

Wayne is the instructor of record for the Graduate College course, “Teaching with Technology.” His broad background in applied educational theory, assessment, and emerging technologies[md]and his willingness to implement a promising but experimental

design—made our project possible. The Office of Instruction and Assessment was an ideal home for this project, and it provided us with access to resources that proved critical to implement our ambitious design.

Max Lieberman, student in Educational Technology M.S. program, University of Arizona

Connie Hackathorn, student in Educational Technology M.S. program, University of Arizona

As final-semester M.S. students in a program with a strong focus on both pedagogy and technology, we (Max and Connie) took an active role in course design and construction, participated in weekly class sessions, and interacted with students online. Max focused primarily on game design and LMS integration, while Connie addressed learner-centered teaching and rubric development. Both of us have remained involved with GAME following our graduation.

THE COURSE (BEFORE)

Dr Brent had taught Teaching with Technology for several years in a blended classroom/online learning environment. The course was supplemented by LMS, as well as by many of the emerging technologies that are covered within the class.

Teaching with Technology was designed to encourage “mastery learning,” meaning that students would acquire skills and content expertise and an ability to reflect metacognitively on what was being learned. The course was perhaps unusual in the sheer breadth of content that it endeavored to cover. The most recent non-game-based version of the course featured more than thirty modules of content in areas including applied learning and teaching theory, classroom management, educational technology, assessment and evaluation, and techniques for collaboration.

WHY A GAME?

Our reasons for turning Teaching with Technology into a game were grounded in earlier theoretical and practical academic work on video games in education. Well-designed games provide integrated assessment and contextual feedback; they are good at keeping players motivated and in flow; they incorporate established pedagogical techniques including scaffolded instruction, variable ratio reinforcement, and social learning. Searching for connections between game mechanics and learning theory, we looked to authors including James Paul Gee, David Shaffer, Kurt Squire, and Marc Prensky. Lee Sheldon and Dr Janna Jackson provided models for bringing game mechanics into the very structure of the course.

We hoped to move beyond the previously published research by integrating LMS functionality into our course. With an LMS, we could partly automate grading, track various data on student behavior, and export this information in a standardized format.

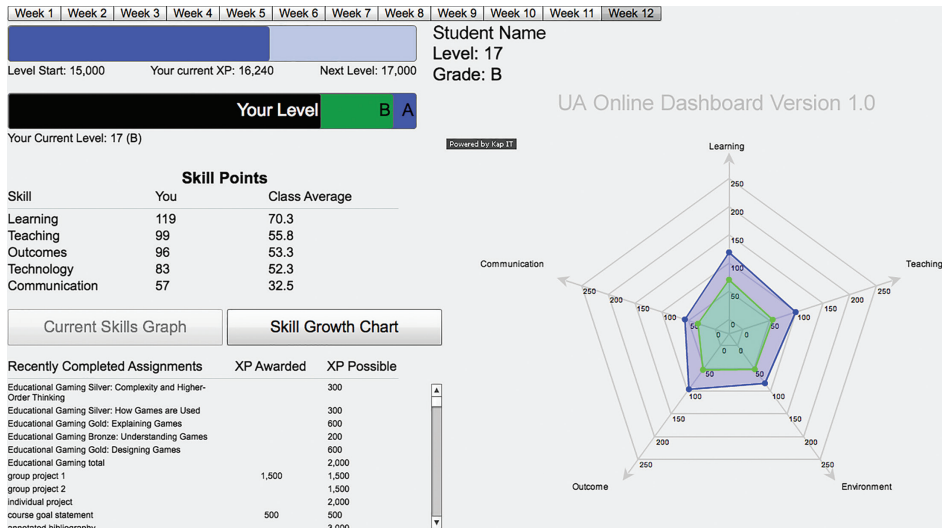


FIGURE A2.2 Version 1 of the GAME dashboard, featuring grade, assignment completion, and skill point information, created by programmer Gary Carstensen for the University of Arizona team. Future revisions will bring more LMS functions into the dashboard interface.

This would allow us to visualize student progress in game-like ways. Although it took some time to arrive at the initial working version of our course “dashboard” (see Figure A2.2), we knew from the start that we wanted to provide students with a digital “character sheet.”

Our goals included improving student engagement in the course, providing students with new tools to improve the reflection process, offering more frequent and contextual feedback, and giving students more freedom to forge their own path through the material.

GAME DESIGN

As a team, we had a great deal of experience with teaching and technology, but only one member had any background in game design. We proceeded slowly and deliberately, talking about the implications of each decision and referring to examples from previous research and from commercial games. The initial workflow, over the summer of 2010, went something like this:

- Take notes on similar projects, and on game mechanics that could fit into the format of a graduate-level course.
- Choose two or three mechanics and develop them into something that might work for us.

- Realize that this was madness and would not work for a previously unconsidered reason.
- Wash, rinse, repeat.

Game design is never easy. It gets even harder when you consider the effect of each choice not just on the game as a game—*Is this more or less fun? More or less balanced?*—but on the experience of students and an instructor, for whom what is learned, and how well, must remain the primary measures of success. At the same time, we wanted to avoid what Richard Van Eck identified as the main pitfall of many games created by educators: that “neither the learning nor the game is effective or engaging.”

We wanted to find ways to exploit the extrinsic motivational power of games without limiting the intrinsic motivation of students to learn. We considered it critical to focus on mechanics, which were not only compatible with a learner-centered instructional model but also inherently aligned with one. There needed to be no question of the game somehow “overshadowing” the learning; to as great an extent as possible, they needed to be the same thing.

Previous course-as-game models adopted the framework of a traditional RPG, and after some deliberation we realized that an RPG was a wise choice. RPGs feature complex numeric metaphors for character progression, which could be adapted to serve as both a grading system and a tool for student reflection. The genre is also fairly flexible, which allowed us to incorporate mechanics adapted from elsewhere.

GAME is a design-based research project, which means that we expect our technology and pedagogy to continually evolve based on our experiences and observations. Our current design for GAME (now in its second semester) features some elements taken from other game-based courses. We use a system similar to Lee Sheldon’s for grading, in which XP and levels correspond to letter grades. Janna Jackson’s policy of allowing students to retry assignments for a higher score was also adopted. We have also incorporated several additional game-like systems:

- Multiple assignments within each content area, each mapped to Bloom’s Taxonomy. Students must complete lower-level assignments within a module in order to progress to more challenging and valuable assignments. These assignments are designated as “Bronze (identify, remember, understand, apply),” “Silver (analyze, evaluate, critique, summarize),” or “Gold, (compose, create, design, plan, invent)” and are partly inspired by both difficulty levels and linear progression in video games.
- A course planning tool that offers students tremendous amount of student choice about what to study and how to study it. This tool enables students to select from

hundreds of available assignments in dozens of content areas, using an intuitive drag-and-drop interface. Potential XP and skill point totals are automatically calculated so that students can see what they can expect to achieve in the areas of grading, knowledge, and skills by the end of the course. This tool also allows us to review students' plans of study and provide feedback and guidance before they are finalized. Together with our assignment level system, the planning tool provides students with a guided experience through the sandbox structure of Teaching with Technology.

- “Achievements” recognizing accomplishments such as exceptional performance on a specific assignment, aggregate skill point totals, and so on. Similar systems exist in many games and game platforms, most notably on Xbox Live. Our achievements are awarded based on data collected automatically by the LMS. Students are notified that they have earned an achievement by email.
- Skill points, which are awarded in five categories corresponding to key course themes and skills. Students' individual skill point distributions reflect what they choose to study within the course competencies and serve as a resource as students to reflect metacognitively on the learning process. We devised several secret achievements to recognize particular patterns of skill point distributions, such as “Jack of All Trades” and “One-Track Mind.”

One of the main strengths of this design is that it incorporates many of the benefits of game-based learning without sacrificing either flexibility (the framework is viable for many subjects and student populations) or applicability in a traditional educational context (real schools can do this with real educators). By organizing content into modules, we are able to gate progress, so that students cannot move beyond their level of expertise[md]as in a video game, assessment is built into the activity. At the same time, the thematic connections between modules help students to generalize knowledge beyond situated meanings and ensure that learners are supported along the path to mastery, even if the goal at the end of that path changes during the semester.

PRACTICAL CHALLENGES AND SOLUTIONS

Our enrollment for the initial GAME-based semester of Teaching with Technology was small, numbering only six students. This allowed us to spend time evaluating the reaction of individual students to the course format. Ours was a diverse group: students from the humanities and the hard sciences; from the United States and China; students who had gone right from college to graduate school, and others who were on their second and third careers. Some students were taking the class as credit towards a University of Arizona Certificate in College Teaching.

There was no guarantee that our students would have prior experience with video games or RPGs, or even a liking for games in general. To make things even more interesting, we did not publicize the course format until the first day of class. In general, students were receptive and even eager to engage with this new challenge. While they lacked experience with games, many of our students were actively interested in learning and teaching theories, and could understand the rationale for the course design in those terms.

The LMS provided our first major challenge. Designed to present content sequentially, it was ill-suited to a course structure in which modules and assignments were listed hierarchically in four subject areas. Students had trouble finding the modules and assignments they were interested in. We were able to address this issue by providing an alternate content overview, in the form of a visual course map (see Figure A2.3). This course map has since been improved to let students access assignments directly, allowing them to circumvent the traditional LMS view if they want.

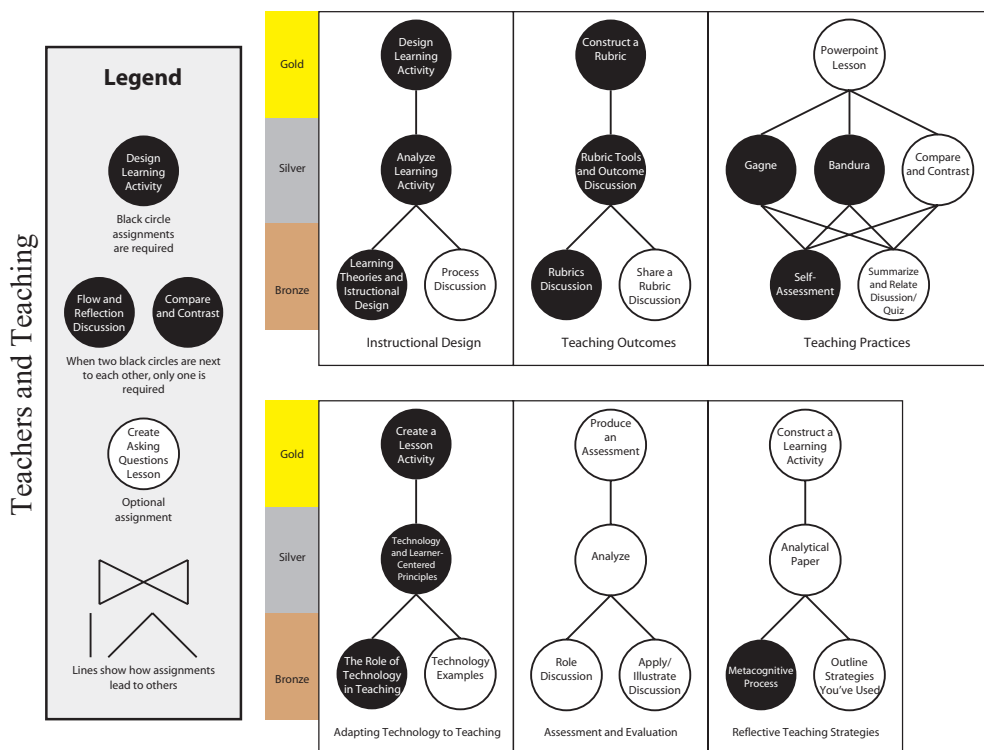


FIGURE A2.3 A portion of the revised Teaching with Technology course map dealing with “teachers and teaching,” featuring an overview of the assignments contained within six of the 30+ content modules.

Other issues were more fundamental to the design of the course. Two weeks into the first semester with GAME, one student asked how the ability to choose from so many assignments might affect class discussions. (“How will we have anything in common to talk about?”) This proved not to be a problem for our course, both because strong thematic connections existed between the superficially disparate content modules, and frankly, because Dr Brent is adept at directing classroom discussions. However, it is a valid concern for other implementations of a similarly open course design. Our current GAME implementation specifies weekly topics for class discussion, while allowing enough flexibility to address issues related to specific assignments as they arise.

At the same time that there was concern that our course might be too open, we discovered that aspects of it were more closed than we had anticipated in that first semester. Required assignments ended up consuming more time than expected, offering students too little freedom to chart their own path through the content. Our second semester course features far fewer required assignments, as well as rebalanced XP and skill point valuations for each assignment. The course planning tool was also integrated into the dashboard between semesters. The result has been a more appropriate workload for students and more opportunity for students to motivate themselves by pursuing intrinsic interests.

FUTURE PLANS

Our first implementation of GAME was a success. Students readily took to the online dashboard, which allowed them to see at a glance how close they were to the grade they wanted, and what assignments were still available to help them get there. Procrastinators could see that their skill point totals were lagging behind their classmates’, and overachievers knew when they were far enough ahead of the game to take a breather. In an exciting example of emergent gameplay, one student earned enough XP to skip the final project entirely. We also observed a great deal of metacognitive reflection. Students were thinking about what they were learning, and about how they were learning it.

One of the students who at first resisted our game-based design ended up excelling in the course, as did several who accepted the course design immediately. Very few students struggled, and although we have taken steps to prevent similar problems in the future, these struggles were mainly unrelated to GAME. The integration of tried-and-true game mechanics into our class didn’t prove a panacea, but then we never expected it to. We have learned a tremendous amount from observing our ideas in practice.

As of this writing, we are in the middle of the second semester using GAME within Teaching with Technology. We have already implemented many improvements to GAME, and we intend to continue iterating both in the short and long terms. Specific plans include

- Integrating more functions directly into the dashboard, which will improve instructor workflow as well as user experience
- Experimenting with narrative elements to address the motivational component of “fantasy” as described by Thomas Malone
- Creating metaquests that encourage specific paths through course content using positive reinforcement (as an alternative to requiring specific assignments outright)
- Offering students new and different types of rewards, perhaps through an RPG-style skill tree
- Building course management tools into an “educator view” within the dashboard

We are confident that our positive results will be improved still further through continued iteration. Over time, we plan to expand the adoption of our game-based model to a wider group of teachers and a broader array of disciplines. Though no longer revolutionary, the idea of using games and game mechanics as serious educational tools is still new, and there is a tremendous potential to conduct meaningful research on difficult questions. We are excited to be a part of this important field.

Those interested in following our efforts can do so at <http://gameua.wordpress.com>.

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First Edition Case Study 3

Louisiana State University

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REMEMBER THE DEFINITIONS OF stereotypical hardcore and casual gamers on level 5? Some gamers don't even realize they *are* gamers, as Professor Broussard discovered when she polled her class in this case history. She also discovered that educators being trained with traditional methods may get uncomfortable when faced with alien concepts like creating avatars and leveling up.

As we will see though, this didn't discourage her. Her own familiarity with *World of Warcraft* and console games helped her come up with the idea of rewarding them with achievements. Regular rewards are a prime design component of video games, so they fit perfectly into the multiplayer classroom. And Professor Broussard was able to successfully tie achievements back into XP.

Professor Broussard (see Figure A3.1) also noticed a number of changes in the social interactions in her class as time went along.

The course formally titled "Introduction to the Study of Education (Intro to Ed)" is designed with the beginning preservice teacher in mind. The course description in the class schedule reads for prekindergarten through third grade only; however, this does not deter a handful of students from other majors from finding their way on to the roster.

The gamed version of this course has been taught over two semesters at a large southern university. Almost all of the students in *Intro to Ed* are 18-21-year-old white females.



FIGURE A3.1 Jessica Broussard.

Over two semesters only three males have registered for the class and of those only one actually wanted to become an educator of any sort. Most of the students are second or even third generations of their families who have attended college; some are the third generation at this particular university who have become teachers.

The classroom for the first semester was not small so much as filled with six large tables that were awkwardly arranged into the shape of Pi. They were placed this way to encourage group work. Yet this placement also prohibited movement around the room, making monitoring progress on classwork or handing out papers to individuals difficult and making the classroom seem very small. The room was equipped with a digital projector, connected computer, and document projector. These were placed in the front corner of the room farthest away from the door.

The classroom for the second semester was large enough to fit well over sixty students in its current design of seven long and often shifting rows. There was also ample space at the head of the classroom, which comes equipped with a whiteboard, projector screen, and a technology lectern that allows its user to use the document projects, desktop PC, and microphone. When fully occupied, moving around either classroom is difficult to say the least, as was rearranging the furniture. So other types of activities could be equally difficult.

All students are comfortable with technology. The majority of each class has had iPhones or other versions of smartphones. Generally, half the class brought laptops to the weekly face-to-face class. And many of those students have Facebook or some instant messaging program up during lectures or group work.

Even knowing how comfortable the students were with technology, at the beginning of each semester when I asked if any of the students were gamers or would even consider

themselves to be close to being gamers, not one hand was raised. I then asked about different types of games. Did they play *WoW* or *Call of Duty*, *Madden*, and so on, but still there was no response, except on the faces of males who later admitted to wanting to claim their gamer identity, but they already felt out of place being the only males in the room. They did not want the “nerd” stereotype that occasionally goes with the title of gamer to further separate them from the rest of the class.

It was not until I started naming the more casual games like *Farmville* or the *Wii Sports* that the female students became aware of the fact that they actually did play video games, very regularly, bordering on constantly. To many female students, the understanding of what a video game is could be most simply summarized as involving violence and a console. *Gamers*, in their minds, are dedicated to or focused on a particular game or type of game, bordering on obsession. For these students, if the player could take a break and did not have to kill anyone, it was not a video game, and if they did not possess a certain level of interest, they were not gamers.

I introduced the nature of the course by changing the language of the standard syllabus. My students did not participate in weekly assignments; instead, they had quests (presentation of chapter materials). In-class assignments generally were referred to as miniquests or side quests (depending on the size or import of the assignment). The biggest assignments were the raids, which in other courses were called *practicum* or *field work*, and the final boss, or final exam. Even though this exam had to take the form of a traditional multiple choice, students took the exam as guilds.

Most of the students were completely unaware of or inexperienced with the MMORPG genre and felt uncomfortable with the idea of creating an avatar and even the overall language, at first. Because of their particular definition of game and lack of experience, certain concessions were made so that they would be able to more comfortably approach the teaching methodology. I removed the ideas of creating avatars and leveling up. Many of my students did not see starting off as a level 1 avatar and building up from there as the development or evolution of character, but as more of punishment, as if they have already failed. They were more comfortable with the idea of starting off the class with a clean slate and seeing each grade as a success.

This need for success is also where the greatest innovation for my version of the course came from. My students wanted to be able to see their successes and with my own experiences with *WoW* and Xbox, I developed the idea to give them achievements.

Weekly, students had the opportunity to earn several achievements based on their online quest work for the week, forum discussion participation, and reflective blogs. Students were only required to post an initial response to the forum discussion and respond to two others—three total. Any number of students could earn these as long as they contributed substantive posts.

- Shine: For posting 4[nd]6 comments
- Super Shine: For posting 7[nd]9 comments
- Mega Shine: For posting 10+ comments a week

Other achievements were based on the content of their posts and were far more subjective, usually only one of each was given.

- High 5: This was for a comment that struck me as deserving of congratulations (earning a good grade, overcoming a personal, academic, or professional hurdle, or coming to an unexpected and meaningful conclusion).
- Hmm: This was for a comment that they believed as a student but could change as they became teachers.
- Golden Apple: For mentioning their raid/practicum experience.
- Good Sport: For being able to not take my devil's advocate comments personally.
- Backbone: For commenting on something they saw in class that struck them as inappropriate.
- Eddie: For the best performance in a blog.

Each week's class started with the PowerPoint or Prezi presentation that announced the winners of each award. Students who earned the second type of achievement had the opportunity to discuss what they had written, which would lead into a whole-class discussion. Often, this was the student's opportunity to bring up topics that were not in the realm of the week's presentation subject, but that they were still curious or concerned about.

The results of this interaction and feedback were successful, but not as much as it should have been, based on how I had witnessed gamers react when they got certain achievements. At first, students were not excited about earning them so they did not strive to do so. I asked about this later in a focus group, and it came out that there was not enough of an incentive for the students to do the extra work, especially for the higher-level Shine achievements.

Right before the midterm of the first session of the course, I made the announcement that achievements would be converted into XP for the final grade point calculation. Essentially, according to the number of achievements they earned, I would add a percentage of that number of points to their final grade. Once this sank in, students could be seen counting the number of times they had been awarded an achievement. (PowerPoints and Prezis were available for them to see on the class's online learning environment.)

Soon, students began to *metagame* the class. Those who usually did not remember to participate were earning Super Shines. Students who rarely had anything of reflective value in their blogs were starting to go back through to previous winners' blogs to see what they had discussed to emulate the posts. So, while this may seem as if they were not getting the most out of the assignments, especially the blogs, I felt they were working with an exemplar and now could see what good reflection looks like. This also encouraged them to participate not just more often but also more substantively than they did previously.

Having seen this trend in the student's behavior, I decided that for the second session of the course that I would make this announcement at the beginning of the semester, but that I would increase the number of achievements students would have to earn before extra XP/grade points would be given.

I believe that it was because of this incentive that the number of students earning the Shines (all levels) dramatically increased. In the first week of the first session, only three students out of twenty-five earned any level of Shine, approximately 8%. In the first week of the second session, twelve out of the thirty-five on the roster earned Shines (approximately 29%), while three earned Super Shines (approximately 8%), and two earned Mega Shines (approximately 6%). In all honesty, this was the week that I felt compelled to create the Mega Shine award as one of the recipients made eleven posts, and another thirteen, and I had never witnessed this level of participation in the course before.

At the end of the first session, I asked students why there was a sudden increase in people earning Shines and other achievements. My informant "S" said perhaps a little too honestly, "Well, they finally had a point."

While observing the students receiving the achievements, interesting social aspects of the class began appearing, namely the competitive nature of the female students. The young women started bickering among themselves about who should have earned an award. There were also rumors of me being biased and favoring certain students when giving awards. This is understandable, as I tended to be suspicious of those students who suddenly began reflecting on subjects that they previously never mentioned or when posts seemed to be disingenuous. As the *Game Master*, I did not want to feel like I too was being *metagamed*.

During the course debriefing or postmortem, I sought out the students' opinions about any additional changes they would like to see for the future with the method and about the methods in general.

The changes many wanted to see were more fair distribution of points per achievements and better uses of guilds. According to many students, they wanted to see the Super and Mega Shines be worth more than the Shine. The most often requested was that each Super should be worth two XP counts and the Mega three. They also wanted to see the Eddie be worth more than the other subjective achievements. He was often touted amongst the players as being the top honor each week, ostensibly because of the appearance of the slide (see Figure A3.2).



FIGURE A3.2 The Eddie.

The other main change that they wanted to see was to make other groups treat the students as guilds did when presenting. Students often presented the content materials and neglected to use the groups mainly because the physical space made it difficult for students to separate into individual groups. So more often than not, when a guild presented materials, the students were approached as individuals and given some form of worksheet/study guide or divided into halves or thirds when competing in games.

At the end of the course, I asked the students to submit anonymous statements about how they felt about any aspect of the course. Some complained about their specific guild or the topic they had to present or wished they had gotten more achievements. However one student (I still do not know which) stated:

I have never heard someone say, “This is your mission.” This is the quest that you have to go on. It is an awesome idea to set up a class around a game, because essentially when you are in college or in school, your quest is to get to the finish line: to get that A or to get that B that you want in that class and to achieve your goal, to learn whatever you are supposed to learn. This really intrigued and motivated me.

I simply do not believe that there could be a better advertisement written or reason for continuing to use and develop this method.

First Edition Case Study 4

Valencia Community College

Carl E. Creasman Jr.

Professor of History

Chair of History Program, East Campus

Valencia Community College

MIXED RESULTS CAN BE as instructive as outright success and failure. I include this case history as a demonstration of that. The observations by students are informative. The questions Professor Creasman raises about class design and how to measure success when comparing a classroom with elements designed as a game with a traditional classroom format are enlightening.

There was a small, but measurable increase in student learning as measured by classroom assessment techniques (CAT). And possibly the most heartening result is that Professor Creasman is determined to build on what he has learned and try again (see Figure A4.1).

I have been playing games since the mid-1970s when, as a preteen, my father taught me to play chess. As my love for history grew, I drifted to historical recreations of actual events from the U.S. Civil War and Second World War. When personal computers emerged in the late 1970s, my best friend (and most avid gaming partner) and I broke new ground with gaming and the computer.

I feel very strongly that gaming is now the lingua franca for young America. In 2005, I first attempted to use gaming techniques within a EUH 2000 (Western Civilization to 1650) course. As a lifelong gamer, I agreed with Dr James Paul Gee that the gaming industry has a lot to teach educators. The experiment was a success, though the challenges to implementation for the typical college classroom led to only a few other attempts. During the same



FIGURE A4.1 Carl E. Creasman Jr.

5 years, I also incorporated an immersive role-playing activity for one assessment within my EUH 2001 (Western Civilization 1650 to present) course: role-playing the Congress of Vienna. Another positive experience, being simpler to incorporate, I have continued using this learning method in that course.

For my Early American History Course (AMH 2010), which goes through the Civil War to 1877, I undertook an action research project to determine if incorporating techniques from the popular world of gaming (particularly MMOPRGs such as *World of Warcraft*, *Everquest*, *Eve*, or *City of Heroes*) would increase student engagement, performance, and retention. The main focus was really engagement and then connecting an improvement with engagement to the other two foci.

To do this, I restructured a unit within my AMH 2010 course so that students would “play the level” to complete the unit. I created five “characters” for the students to choose from, based around five thematic fields of study (war, government, culture, economics, and diplomacy) from the History field. Then I built various gaming techniques into the overall course, including the use of gaming vocabulary, grades presented as XP, formative assessments based around the character’s field of expertise, and a summative assessment that utilized teamwork requiring all five characters to “defeat the Boss challenge.”

During the early part of the course, students were introduced to the five character classes. After a few weeks, they were allowed to choose their character by lottery in an attempt to gain equal guild sizes. (A guild in my parlance was all players of one character type.) By having equal guild sizes, I hoped to be able to build “supergroups” for other assessments, particularly the main unit assessment.

In all of my classes, I used a variety of CAT built around student preparation. I gave students instructions about the class before our upcoming topic focus. Traditionally, this has been general in nature; for this class, I provided more development around each of the character classes. This idea of “class preparation” (what I called the daily quest for the game) was a key piece of evidence in how I determined engagement within the class. Each semester I recorded whether or not the student was prepared for a given day or not, and then incorporated that overall measure as 10% of their overall grade. It has been my casual observation that those students who were better prepared more often did better overall in the class. Some did not, of course, though it was impossible to tell exactly what would have happened for said students had they never prepared. And, equally, some students who “blew off” the daily prep, still managed to do well in the overall grade of the course, although that percentage was low.

Within the class, each day had a variety of CATs that I used to cover the material. In many courses, this was not effective because more students than not were not prepared, thus not engaged in the class that day. For this course, as stated, I built the CATs to merge with the classes. Each day would see either a “supergroup” meeting or a Guild meeting. Toward the end of the semester, there were more Guild meetings, primarily because of changes to the overall makeup of the class.

For the gaming unit, I then built a special assessment that forced a supergroup to work together, just like in a game where typically you needed most of the character classes to emerge victorious. Adding to this, I incorporated a gaming ladder so that students could see instantly where they stood in the game, and therefore in the class. I also incorporated various “level bonuses” that connected to performance in the class. Most of these rewards were aids to the students that I typically gave my class, but were underused; I hypothesize that these rewards, if made more clearly and connected to achievement, would provide incentive to students.

OBSERVATIONS

Results came back mixed with no discernible impact on retention and only a small increase in overall performance. The small increase was noticeably that no student failed the assessment, unlike previous semesters. The evidence regarding engagement was more significant as demonstrated by their daily preparation for class. However, even with better engagement, the grades overall for the class, though outside the scope of the actual unit Action Research Project Builder (ARP), were only slightly stronger than previous AMH 2010 courses.

To start with, my withdrawals were similar to past semesters. On average, I lose about 20% of my students (across all classes); this semester it was 23% (seven total students). Findings were complicated this term because my college instituted a new withdrawal policy. Previously, students could wait until the end of the semester to withdraw in the hopes of getting a “withdraw passing” mark. The new policy put in place a “hard” date, and the

professors were instructed to really emphasize this with students. I heard from several of my peers that they saw higher than usual withdrawals, especially during that last week. It is my hope that as I try this again in the Spring 2011 semester, I might see a better result.

Grades were better. Of the students taking the exam, all made what Valencia Community College considers “success”—A to C range (100 to 70 in my class), as shown in Figure A4.2. Previously, all prior classes had some students making either a “D” or an “F.” However, the unit assessment was a different type of assessment; previously, my Unit 2 assessment was a typical exam, so comparison is not exactly fair.

Moreover, the remaining unit assessments were typical “exams” that I had given previously. A cursory glance at those student performances indicated those exam scores produced a typical grade distribution compared with other previous classes. I would need to compare those to be more accurate, but in this “gaming class,” I did have a few students who made a D or F, as I typically do.

Of course, a deeper philosophical question emerges here about assessment. Did my new assessment adequately measure their learning for the unit? Do my older, more traditional assessments do the same? Are they too harsh? Do I grade the newer assessment, which combined group aspects, creative thinking, and writing easier? I need to think about these questions as I move into the new semester to try this again.

Overall, the grades for the course were higher, or maybe better stated, “stronger, than previous semesters.” The college has a method of judging success by course, measuring students who scored a “C” or better against all enrolled students. Failure then includes students who withdrew. The performance was not supremely higher, but except for the Spring 2008 semester, the overall student performance was higher. Overall, my historic percentage of success is 59.86%, so the 66.7% is better (see Figure A4.3).

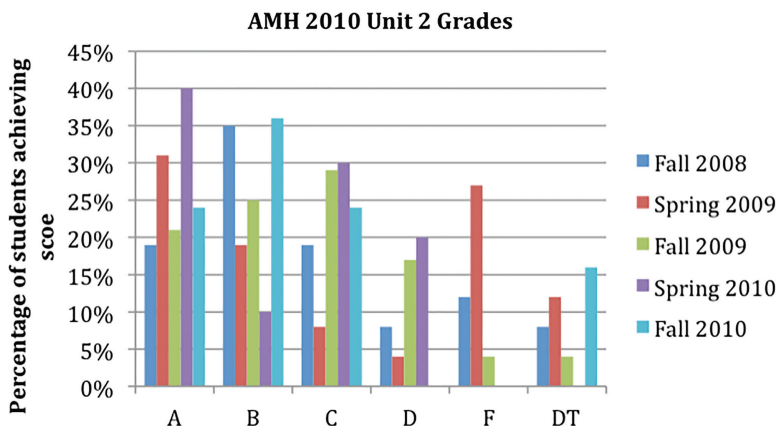


FIGURE A4.2 AMH 2010 Unit 2 grades.

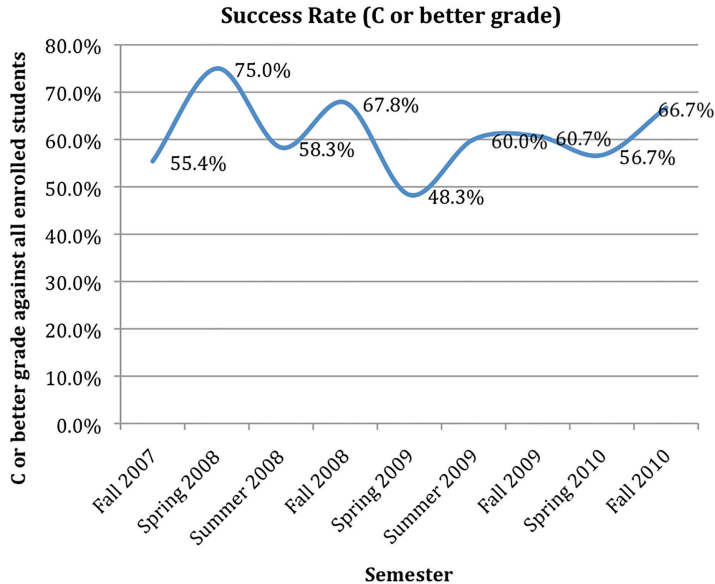


FIGURE A4.3 Success rate (C or better grade).

But it also was stronger, or deeper. Typically in my classes, I have students who I end up curving their grade based on a variety of factors. I don't begrudge this fact, nor think it a poor reflection of those students' learning. However, for this class, I did not need to curve any students to "protect them." I did raise some grades, as before, based on my opinion of their learning, but there was no need to "help" any student gain a passing grade. In other words, due to the overall work of the semester, their grades were steadier. I attribute this to the idea of the experience level chart that they could see at the start of each class.

The notion of the Level Chart is one aspect of engagement that did impact student performance, at least slightly. In previous semesters, I have been amazed at how many students simply had no idea where they stood in the course. Even this semester, I had three students in other courses simply withdraw without really considering where they stood in the class, and each was passing easily.

The idea of the Level Chart was a direct tie into the gaming concepts. Not only did it allow students a chance to see where they were, but also did it induce a small level of competition between certain students in an attempt to do better.

Overall, it is in the area of engagement that I can point to success, though with the prior information about withdrawal and academic performance, this raises more questions than it answers. Here again, the level chart played a role. I think that was evidence of a very simple fact because I consistently showed them the Daily Ladder (the product where they could see where they stood in relation to the overall "perfect" score to that point) *and*

they could tangibly see how the daily quests impacted their score, they did that work. So, the preparation work effort by the students was better. In previous semesters, the class averaged 3.69 unprepared days. This group had only 0.8 unprepared days with no student showing up unprepared more than 3 days. In previous semesters, I would have 3–5 students who, across the semester, did not care to do the work, often being unprepared 6, 8, or even half of the class (12–13 days).

Typically, the prep score is shown in the syllabus as 10% of the total grade. Thus, a student has to actually care enough to “do the math” to determine what their prep score is. If they *do* keep up (only a few students ever do, based on my observation over the years), they can tell easily. Most have no clue. So, these students could see directly how the prep score helped them.

The only evidence that getting to choose their own focus actually made the course more enjoyable came from student comments. And while that is valuable, and we need to respect their opinion that they enjoyed the class better and liked being able to focus more into an area of their choosing, there is *no evidence* that any of that actually impacted their grade.

Lastly, engagement and absences[md]again, not much of a difference. In my typical semester, I see 2.63 absent days. This class had 2.3 absent days. Each class had 2[nd]4 students who had high absences; so, did this class.

So, low absences as with other classes, but much better preparation. Some student comments about their experience:

- Choosing my own path of study put flame to the fire in how I viewed the class. I not only was interested and happy to participate but also was excited about the class and doing the class work. I even started talking in class, answering questions, which is rare for me.
- I didn't feel like I was rushing through the assignment and chapter of Rev. War. I like studying specifically my topic and then taking notes on the other classes.
- I like looking at what interested me. However, some of the points were far too vague and made it more difficult than it really was.
- I got to pick a topic of interest to me, so it helped greatly to keep me interested.
- It affected my interest because I was able to study what I wanted to about history.
- My interest has been influenced because by being able to study what I enjoyed helped me enjoy history more.
- The interest of learning was not changed, but the structure of this unit made me feel I did not learn about the revolution as a whole.
- The structure definitely influenced my interest positively.

- The role-playing took it from interesting to AWESOME. I prided myself upon having one of the leading positions on the “leaderboard,” which resulted in my having one of the highest grades.
- The role-playing was unique and beneficial. I liked learning about what I thought was interesting.

Some final thoughts: I guess the students liked playing the game because, after the unit, I gave them the option of keeping the gaming structure or going back to the traditional class. They voted overwhelmingly (21-2) to stay with the gaming unit. The two who voted against it were concerned about “learning everything there was to learn” in the course.

I thought perhaps the class voted for the structure because they liked the fact that I had made all extra credit more transparent. However, only three students did significant extra work, so the extra credit options were of little value or interest to the students. Two of those students “needed it” or got a bump in grade because of their efforts; other students clearly *would* have gotten a bump in their grade had they done the same level. In fact, had other students completed an average amount of extra credit work, they all would have gotten a bump in grade.

So, I suppose I can conclude that they just liked the concepts of specific topics to study, doing more group work, the ability to see clearly where they stood in the class, and maybe just the idea of being in a “game.”

I have mixed feelings because, as I stated previously, the general rule of thumb is that more engagement leads to higher scores. Based solely on the math, if these students had performed the historic level of preparation as seen in my other classes, at least 3[nd]6 of them would have gotten lower grades, probably a full letter grade. Yet, in each class I teach, I have some students who do not do the preparation and they make an A or B, while some students *do* the work but don’t make an A or B. In fact, this class “blew the curve” in comparison because 81% of them did “B or better” in the preparation. Historically that number is about 50%.

I have done some research to see that in general my students who are prepared at B or better get the VCC success level (C or better grade, with 72% getting an A or B grade). And, of those who did C or worse prep, 72% of them got a C or worse. This group had 81% with a B or better prep and 71% got an A or B; the remaining students who had less than a B in prep[md]50% got a C or worse.

This is all hard to measure, of course, because there is no way to replicate the student being in class, or there being no overt demand for daily preparation. Perhaps, if they didn’t prepare during the unit, their scores would have not been as high as they were. Of course, some students are just smart, so prepared or not, they do well. Some are weak, so prepared or not, they do not do well. Is it true that daily preparation helps you? Anecdotal information from some students says that they *do* feel as if they do better.



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First Edition Case Study 5

Robert Louis Stevenson Middle School

Matthew Baylor

Charles Souza

*Robert Louis Stevenson Middle School
Honolulu, Oahu, Hawaii*

HERE IS THE STORY of our youngest multiplayer classroom: a seventh-grade math class. The game is *Knowledge Quest (KQ)*, set in medieval times. A good deal of thought went into mapping game terminology to common classroom objects and tasks. The quest for an experience bar is heroic. I love the negative XP for not closing laptops. And there was an additional factor to be considered. This was an eclectic group of students to say the least.

As we saw with the Marked Tree high school case history, the game must reach a variety of ages and demographics. Here we have a class composed of several demographics of varying abilities and needs. A primary challenge was to design a game for a class that includes a mix of students, including special education students and English language learners (EEL).

So, let's journey into the past on the island of Oahu, and the class that with the help of their instructors (shown in Figure A5.1) turned it into a Treasure Island indeed.

ABOUT THE CLASSROOM

Our classroom is a seventh grade (Inclusion) General Math class, at a public middle school in the Honolulu District of Oahu. The Inclusion aspect of our class is that we have anywhere between 3[nd]5 special education students who are in each class, without an aide. Because of this, there are two teachers in the classroom. Along with the



FIGURE A5.1 Matthew Baylor and Charles Souza.

special education students, we also have ELL, ranging from barely any English to very good English.

HOW KNOWLEDGE QUEST WAS INTRODUCED

Robert Louis Stevenson Middle School utilizes different technologies in the classrooms, such as Promethean Boards and Google Docs. In our classroom, each student has a laptop, a TI-73 (Navigator) Explorer Calculator, and each student at the school has his or her own Google account. On the first day of the third quarter, we introduced the class no longer as a normal class, but as a multiplayer game, set in medieval times, called *Knowledge Quest*. Using Google Sites, we created a basic Web presence to explain the rules and also for the students to visit and keep track of their progress at www.rlsms.com/kq.

It started as a way to get the information of how the game worked on the first day, and it evolved daily. Google documents, spreadsheets, forms, gadgets, and presentations were all being used and were easily uploaded to a Google site. XP and gold were all inputted

into one spreadsheet. From the spreadsheet, we now had charts linked to total XP for each kingdom, as well as each individual avatar. Each student had his or her own page with an automatically updating status bar linked to the XP page. Achievement badges were also placed on the students' pages.

The basic rules were as follows:

- Class time would be divided between fighting monsters (Homework, Worksheets, etc.), completing quests (Presentations, Case Studies, etc.) and crafting (Maintenance of Online Math Document, Use of Navigator System, White Board Work, etc.).
- At the beginning of the semester everyone in the class would choose and name their avatars.
- Guilds(groups) would be chosen and balanced as closely as possible by skill level and interests.
- Guilds would choose their names and design their shield.
- There would be six to seven guilds of three to four members each, depending upon class size.
- Students would begin on the first day of class as a level 1 avatar. Level 10 would be the highest level they could achieve.

The first activity we introduced was to fill out an index card with their avatar's information: avatar name, kingdom shape (each period decided on a shape, circle, diamond, infinity, and star were chosen), seat number, strongest math subject, and to draw their avatar on the back. Second, we had each group of four build a Guild Crest. Each guild had four students, based on skill levels, chosen by the teachers. Each team had a high, a high-medium, a medium-low, and a low, or inclusion student, and we attempted to match personality types and students who would work best together. We did this so that each group was balanced, the lower range students had an opportunity to learn from their peers, and each group had an equal chance of winning any sort of competitions we might play during the course of the day. The Guild Crests were shields, printed on paper with four equal segments and a section for a guild name. The students were to come up a guild name, design a logo, and color it. Once completed, we hung them up in the classroom.

The first thing to note was that the XP the students were receiving was not directly related to their grade in the class. The students still received a grade (0–4 scale) on homework (10% of their grade) and quizzes/tests (90% of their grade).

How to gain experience and level up was explained, and it was also posted on our website. Each day we had the students log into their Google accounts, open their Math

Notes document in their Google docs, and type in the Learning Goal for the day. We also had them log into their Navigators. This was worth 50 XP if every member of the guild had this completed.

Before introducing *Knowledge Quest*, some students would come in, talk with their friends, not take out any materials to work with, the bell would ring, they would still be talking and not inputting their learning goals, and some would never write down the learning goal. As soon as we introduced *KQ*, and were giving students XP for completing these tasks, over 90% of the students were in class, seated, logging into their navigators, and filling out their math notes with the learning goal for the day before class even started. Many students were now putting their learning goal into their notes before school or during recess. To encourage working as a guild, the 50 XP would only be given to the guild if every member had completed the task. As a result, students paid more attention to what their guild members were doing and reminded them to finish their work before doing anything else.

Students who received a 4 on a quiz would receive 300 XP (150 if done on a retake). A 3 on a quiz would be given 200 XP (100 if done on a retake). A 2 would be 100 (50 on a retake). On the more difficult monthly Common Formative Assessments (CFAs), a 4 would be given 500 XP, (250 on retake), a 3 would be given 400 XP (200 on retake), a 2 would be given 300 XP (150 on retake).

XP was also given for progress reports. If your grade in the class were an A, you would be given 300 XP, a B would be given 200 XP, and a C would be given 100 XP. Progress reports were given out every third, fifth, and seventh week of the quarter. This was done in an effort to get students to keep up with their grades throughout the quarter and not try to complete everything at the end of the quarter.

Homework, completed and turned in on time, was worth 100 XP. We saw an increase in homework being turned in, especially from a few of the inclusion and low students. This helped their grades, but overall, they showed more interest in leveling up than what their grades were. We could count on one hand how many times students asked: “Will this help my grade?” We had shown this to be true via our Marketplace, where students could buy “items” with the gold they earned.

With each level, students were given a certain amount of gold, which, in turn, they could spend on a number of different items in the Marketplace. Student could purchase things such as bottled water, chips, 20 minutes of game time on the Playstation in class, 500 XP, pencils, dry erase markers, bonus points on their CFA, or quiz scores (which improved their grade for the class) and also a free homework pass. So far, 64% have purchased the 500 XP, 14% have purchased a homework pass, 14% have purchased game time, and 8% have bought chips. That is 0% bought the items that would improve their grades. This told us that the students were more interested in leveling up than they were in receiving a specific letter grade for the class.

A few extra features we added since the start included:

- Badges, which were little images that were added to the students' account pages when they performed a certain task well, such as asking great questions, or when the entire guild logged into their navigators and math notes on time for a week straight. These seemed to be good incentives, but they were also very demanding on time, as it involved updating dozens of students Web pages more frequently.
- Bonus Quests, which were posted almost on a daily basis, and were a great source for students to earn an extra 100 XP, and either review material or current benchmarks. These were posted on the website, and were submitted via Google Forms.
- Scheduled Tutoring, where students came in specific days during recess and received extra help, either with the tests coming up or on work they needed to redo. This was worth 100 XP. We had tutoring before *KQ*, and had seen an increase from 0 students to almost 6[nd]7 students every time it was offered. From what we observed, it was stemming mostly from students who were very close to each other in total XP, and were trying to keep up with each other. The students who really needed the help came in less frequently, but still more often than previously.
- Negative XP for not closing laptops as they left. We introduced this due to laptops being knocked over by bags and damaged while students were leaving class. This was a major issue getting students to remember to close their laptops before leaving class, but as soon as we introduced—50 XP for everyone in the guild if anyone in the guild left it open, the number of laptops left open dropped to 0. With no reminders or any sort of incentives, students continued to close their laptops, or if their guild member forgot, another member would close it for them. On some occasions, other guild members had been closing others for them. This drastic change was one of the most surprising outcomes and sustained itself with no reminders from the teachers.

Some of the observations we made during the time we began using *KQ* in the classroom:

- Students were coming into class on time, and were working together to complete their daily task of logging in. After they were finished, the students went onto the *KQ* website to see what their XP was and what badges they had earned.
- Our original thoughts were that picking avatar names was not going to be that important, but it really set the tone for the entire project. Students also created names for their guilds, which seemed to give them a sense of unity. All guilds created a shield, which also added to their togetherness

- When going over what an equation was, we used a lot of gaming vocabulary. We did a weapons check, pencils were swords, dry erase markers were wands, red pens were torches, and whiteboards and erasers were shields. The students, particularly the boys, responded really well to this. I did see a small divergence in boy to girl participation, but the participation by these girl students was even lower before KQ. However, the student with the highest XP was a girl.
- As pencils and dry erase markers were a necessity in the classroom, before KQ students were just given them when they didn't have them. Now, students were automatically charged 50/150 gold if they did not have a pencil or dry erase marker, respectively. This led to a large increase in the number of students bringing their materials to class. Badges were also awarded to those who consistently brought all their weapons to class.
- One student in particular who had not had much success in class before KQ was now fully engaged, turning in all homework assignments, and working really well with guild members. On multiple occasions, this student mentioned that math is now their favorite subject, and it is because of KQ. Their grade is still low, but they have a better attitude and have made substantial progress in class.
- After introducing KQ, 30% of students who had a grade letter of C or below for the first two quarters had increased their grades to a B or higher.
- There are a total of 107 students, split between four periods. As of March 2011, 5% were level 1 (of which four students were new to class), 28% were level 2, 32% were level 3, 20.5% were level 4, 7.4% were level 5, and 0.9% (one student) was level 6.
- There has been some switching of guild members due to an imbalance in skill level, personality clashes, students leaving the school, and so on. But for the most part, the guilds in which students were originally placed have worked well.
- When students have to work in their guilds during class time, a timer is started, and we say, "Enter battle formation!" This is the signal for students to work in their guilds.
- In order to set the tone in the classroom, medieval music often is playing, or is played once our timer goes off. Students seem to enjoy the music and get into the game more when music is played along with the lesson.

As a whole, the structure of the curriculum has not changed, but rather what has changed is the vocabulary and context. With a little imagination and energy, changing a classroom

into an RPG of any setting or time frame is as easy as renaming pencils to swords, math problems into monsters, squares into plots of land, and perimeters into fences around your land. This has been a very effective method to engage our students and to teach them in a manner which they will both enjoy and remember.

WHY WE WANTED TO TURN OUR CLASSROOM INTO AN RPG

Turning our classroom into an RPG started after a discussion on what the motivations of our seventh grade students were. Having seen students time and time again playing simple flash games, hearing conversations about what new games were coming out, seeing students play card games on campus, and even creating their own games with “Silly Bands,” it seemed obvious what the driving force behind our students’ interests were. But what was it that kept them coming back? After doing some research and watching a few TEDtalks, one which mentioned Lee Sheldon’s class, and others which mentioned the power of gaming to engage and promote learning, we decided to try coming up with a game model that would work for our classroom.

Being mild gamers ourselves and having some basic information on the psychology of gaming and other game theories, the one aspect of our game which we knew we needed to have was the experience bar. The experience bar, which fills until leveling up and then reverts back to empty, fulfills our motivating factor for a number of reasons. The tasks that fill the bar would be attainable and therefore would not discourage some students. The bar would be constantly growing, encouraging the student to continue their work in order to level up. Once the bar was filled, they had the achievement of leveling up, but now were left with an empty XP bar, which they once again wanted to fill up. We have experienced this ourselves with games, such as *We Rule* and *World of Warcraft*.

Our efforts to find an experience bar that was easily programmable came up empty. However, with the help of our school administrators, we figured out a relatively simple method of creating an experience bar, using Google sites and gadgets.



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First Edition Case Study 6

Texas Tech University

Stacy A. Jacob

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THIS CASE HISTORY MAKES it clear that you do not have to be a professional game designer to design a class as a game. Here all the teacher needed was to be surrounded by gamers, which is not hard these days. Highlights for me in this article included allowing students to award achievements to other students, and the use of students' avatars as a visual representation of their progress. In video games, we call this "equipping" our avatars.

Let's see how Professor Jacob equipped her players' avatars (see Figure A6.1).

I am an Assistant Professor of Higher Education at Texas Tech University, and I teach Master's and Doctoral students, who are college administrators preparing for advancement, want to become faculty, or plan to work in government doing research at colleges and universities. I generally do not play video games, and I am not engaged in *Mafia Wars* or *Farmville* on Facebook; however, my husband, Jason, is an IT guy and a gamer. Over the years, he has introduced me to all kinds of games (mostly card-based

EQUIP

In video games players provide their avatars with the best armor and weapons they can find. Not only do the stats associated with the gear make them more powerful, but it is also visible to other players, making it a great way to show off a player's achievements either due to the high cost or scarcity of the gear.



FIGURE A6.1 Stacy A. Jacob (right) with students May Lim and Ken Gassoit.

like *Magic: The Gathering* and role-playing influenced board games such as *Settlers of Catan*). In many ways, I am one of the least likely persons to be incorporating ideas from a professor that is working in games and simulation arts. I like actual letters rather than emails, old books, and things from the past. Jason is fascinated with technology and loves video games. It is unlikely that I would have ever heard of Lee Sheldon without my husband's help.

About a year ago, I got an email from Jason that said, "Watch this clip, it talks about a professor who is using games in his classroom, and it sounds like a cool idea." Attached was a YouTube video of a lecture. The speaker in the lecture discussed Lee Sheldon's ideas about using gaming techniques in the college classroom. I both teach a class on "College Teaching" and am always experimenting with my own teaching. I was intrigued, so I wrote to Mr. Sheldon to ask him about his class. He sent me his syllabus, I read it, and then began thinking about my own teaching and classes.

I began talking about Mr. Sheldon's ideas in my "College Teaching" class. My students were also intrigued with his ideas, and so I started to experiment in an online class about the history of higher education that I was teaching the following semester. I created various levels that my students could achieve over the semester and a menu of assignments students could choose from, rather than a set of assignments they must complete. I also gave students choices in how they could earn participation points. The result was positive and so that summer I decided in the fall: I would redesign my face-to-face class on the history of higher education. To do so, I turned to Jason, Jason's gaming friends, and my

brother-in-law, who is also a gamer. Their collective advice, Lee Sheldon's ideas about using leveling, and lots of creativity helped me create the "History of Higher Education in the United States," a class that I will detail below.

To begin, I thought about the idea of the class being a big game with a series of little games within the big one. The big game of the class is divided into four distinct sections. I labeled the sections on my syllabus as the "Freshman, Sophomore, Junior, and Senior years." Each year has a new set of rules as to how to earn "achievements points" and several classes within it. Each class represents a little game, which I labeled as a *quest*. Each quest has its own name based on the topic of the class. Because this is a graduate student course, each class meets once a week for 3 hours.

The freshman year units concentrated on introductory material to the class and contained four classes: an introduction to the course and the syllabus, two classes that overviewed the history of higher education, and a class that introduced doing archival research. After the freshman year, we looked at higher education history era by era and as we moved through the various years, like the college experience, both the history and the class became cognitively more complex. The sophomore year we covered higher education history in the Colonial era, the Antebellum era, the lead into and the Progressive era, and a class on women's education. The junior year contained units on higher education during and between First and Second World Wars and post Second World War, and student protest. The senior year covered various people who have been left out of higher education histories and modern history.

In each class, students can earn "achievement points" by doing things such as attending class, making a good point, making a great point, and being helpful to others. In addition to the various achievement points that I give away (in the form of various colored poker chips representing different point values), each year students also each get one achievement that they can award to any other student for things like advancing my understanding, being helpful in group work, and so forth. At the end class, I act as a banker and students can trade up chips of a certain value for better chips (gold, silver, bronze). When you trade up chips, you not only earn a more prestigious color of chip but the new chip you pay for is worth slightly more than what you paid for it. For example, you pay 11 pts. for a bronze chip, but the bronze chip is worth 12 pts. You have to be in class to earn chips, and you have to read and talk in class to get a chip. Even though I teach only graduate courses where most students attend and read, using the achievement points has been a great motivator to my students. This semester I have had fewer late students (mine comes directly from work on campus), less absences, and much better class discussion (which leads me to believe that they are not only reading the material but also thinking and planning for class discussion).

Students are assigned to two groups: a gaming group and an expert group. Experts pay particular attention to certain lenses in the readings each week and have the charge to do outside work to make sure they understand higher education through their lens. Some of

the expert groups are popular culture, women and minorities, and government policies. Each gaming group contains different experts. Each week for the little games or quests, I can split groups out into either their gaming group or their expert groups. The expert group is a concept from the teaching literature that is generally called *jigsawing*. Group assignments for the course can also be assigned to gaming groups or expert groups.

The quests each week are games or activities that relate to the course content for the week. After a discussion of the week's readings, we do a quest to solidify the information we learned. These quests vary from a board game I made about women's history to making protest posters and chants related to class material. Some quests were created by me, and some were created by students as one of the menu of assignments from which they could choose. Students have commented to me over and over that the quests both help them remember the material and are fun.

Each student also has an avatar. It is a cut-out paper body that they drew on to represent themselves. This was our "get-to-know-you" activity on the first day of class[md]students introduced their avatar after drawing on them. At the end of each quest, I hand out something for them to "stick" on their avatar that represents the era we worked on (buckled shoes for the colonial era, magnifying glasses for archival history, etc.). These are paper items I copy and cut out, and they stick on with double-sided tape. When students lead the quest, they provide the items for the avatar. At the end of the class, they get to keep the avatars as a visual representation of everything they learned.

In addition to all of this, I kept the idea of a menu of assignments from which students could choose. By using both the "achievement points" and the assignments, students can level up to a better grade. The students like it, and I like the fact that it makes every student feel that they are capable of getting to the top level, which will ultimately be reflected as a course grade of an A. If they bomb something, they can always do more, and doing more equals learning more. By using menus and leveling up, my students stayed motivated, and learning ceased to be about grades and returned to what it should be about, engaging and advancing what you know.

After my first run at the redesigned class, there were things that I needed to change, based on student comments and my experiences. I needed a better tracking system for all the points my students earned, for example. The tracking system could easily be done online through Blackboard. I also needed to refine my "achievement points" system and make it a bit simpler. Upon reflection, my menu of assignments should have been expanded to include more variety in length and type.

Designing my class with gaming in mind has been one of the most positive things I have ever done. It is lots of work and every week, I carry Ziplock bags for each student that contain their poker chips, avatars, and weird plastic objects I give out as special awards. It is a pain, but watching my students engage in quests enthusiastically, seeing them motivated,

and well-prepared for class, and hearing them say that they are having fun and love history makes it worth lugging bags of things around. Let me reiterate, I am a novice gamer at best, and I am far from the most technically savvy person out there. However, with creativity, any professor could adapt a class into an exciting experience for their students based on gaming ideas. The result is a profound learning experience for both you and your students.



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First Edition Case Study 7

Ohio Valley College of Technology

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THERE ARE SEVERAL INTERESTING aspects to this case history. Given his mix of students, Mr. Grimes took a stealth approach to the gamer language employed in the multiplayer classroom by downplaying lingo and concentrating on motivation (see Figure A7.1). His thoughts on intrinsic motivation, especially the idea of giving students some control over their fate by allowing them to choose crafting activities, helped clarify my thinking.

His experience presenting “World of Classroomcraft” at a conference in Ohio echoes my own experience in presenting the multiplayer classroom at the Game Education Summit at USC in 2010. Our audiences were as enthusiastic as their ideas were far-ranging and compelling. It was at that Game Education Summit where two instructors from a technical school in Texas told me that they were desperate to motivate students to come to class at all. After designing their coursework as a game, one of them said, “Now they’re all coming to class. Early.”

INTRODUCTION

The one thing I really love about “Gaming the Classroom” is that many of the components are already there and already used by teachers. It’s just a matter of stringing different lessons together and changing the lingo.

After watching videos and reading articles on Jesse Schell, Jane McGonigal, and FunTheory, I saw the potential of how students and teachers could get excited, and therefore



FIGURE A7.1 David M. Grimes.

motivated, when introducing gaming aspects into the classroom. Laying the foundation from Lee Sheldon and his “Gaming the Classroom Website” and forum, I was able to put together an implementation plan that best fits my students and their class needs.

EXPERIENCE POINTS

Since I have some students who are fresh out of high school and some who haven’t been in a classroom in decades, I didn’t want to jump full-force into a total gaming inspired classroom. One major idea I borrowed, though, was turning the point totals for class into XP while introducing the leveling up factor.

Introducing the XP system proved beneficial because it gave the students a path to accomplish the goal of passing the class. Going from zero points and working toward the top “A” level, students could clearly see where they started and where they needed to end to earn a top grade. By not promoting the everyone-starts-with-an-A approach, it took some pressure off the students to be perfect for my eight-week class.

I think everyone has a fear of failing and students being introduced for the first time in a college setting[md]whether straight from high school or from the workplace[md]can alleviate those reservations by knowing they don’t have to be perfect day in and day out. They know they can complete assignments, projects, and tests successfully, to move up in the ranks and in the points to their goal grade.

Throughout the course, having an outline of the different levels and XP also helped the students know where they stood everyday in the course. They told me that having the XP chart in the syllabus on the first day gave them a clear picture of where they were in the class and where they would like to be. It seemed as if it gave a clearer sense of progression through the course. The class wasn't a bunch of days filled with random assignments and tests. It became more of a journey where all the assignments, projects, and tests were intertwined and linked better.

AVATARS

Another aspect that I found beneficial was having everyone create his or her own avatar. Creating an avatar served two purposes: one it allowed the students to have fun creating their own superhero or fantasy character on the first day. It was a nice exercise to participate in as a welcome exercise. Second, it gave me the opportunity to use those avatars when publically displaying grades, whether it was on the classroom door or on the classroom walls. The avatars gave everyone a secret identity. The Hero Creator tool was a fun and helpful tool where students could customize their own fantasy character. For the less imaginative students, a random hero chooser allowed the Website to pick a hero for them.

CHOICE

Just like in some video games, the students had a choice of assignments to complete. In the various chapters, I always listed more than the required assignments or labs for the students to complete. It was up to them to choose which ones they worked on and finished. This availability of choice is similar to the choices that a player has in a video game. There are different paths to take, but the ultimate goal (earning an A) is still the destination.

By having these extra choices, students could pick which assignments to complete and build their XP. I found out some students completed all the assignments, wanting to really boost their XP or “catch up” on some points that were missed on a previous assignment or test. Some students indicated they liked having a choice of the lab activities since it allowed them to pick the ones that appealed to them the most and avoid those that may have been confusing.

LINGO

Although I did not use or stress the actual crafting, quests, guilds, or bosses lingo, I did implement those ideas and made it a point to describe that those exercises were helping the students build their skill level so they would not only pass the test but also improve their own abilities with the computer program. So when we spent class time finishing Microsoft Word labs, like creating flyers, it was clearly understood the purpose was to develop word processing skills. When we took notes, it was also for the benefit of building upon the skill

level. What we were doing was crafting, completing quests, and working in guilds, even though it wasn't explicitly mentioned.

But having the students know the reason why they were taking notes, completing lab assignments, or working on group projects did seem to provide a clearer picture to answering why we were doing this assignment or that project. Plus, it was all tied to the XP and that showed progression.

SPREADING THE WORD

After working with these new techniques, I became excited. I wanted to share some of my findings and collaborate with other teachers from elementary, middle, high, and upper education schools. If teachers become excited, it's easy for that enthusiasm to trickle down to the students. And that is a great emotion to have in the classroom.

In the final months of 2010, I applied to speak at the eTech Ohio Conference in Columbus. My topic was "World of Classroomcraft: How You Can Implement Social Gaming in the Classroom to Motivate Students." I wanted to share my experiences and discuss future ideas of expanding the "Gaming in the Classroom" techniques.

eTech Ohio accepted my speaking application and on February 1, 2011, I had a full banquet-style room of about fifty people interested in the topic of turning the classroom into a game.

My 45-minute presentation covered the XP system, changing the lingo, and intertwining all the lessons and concepts to create a fun atmosphere.

The best part was when attendees submitted their own ideas. For elementary school students, perhaps having a cute monster sticker can help with the whole boss idea. The boss, or test, is trying to slow you down from beating him by giving you this worksheet. It's up to you to beat this worksheet and move closer to defeating the boss. This may help with the game storyline.

Others were optimistic in making an online class Website that kept track of XP. The idea was an online grade book or content management site with the gaming twist. The ideal tool that a teacher mentioned would be an automatic XP countertool so that teachers could just type in a number, and an XP bar would display the total amount of points.

Then some attendees expressed optimism about gaming in general. One educator believed he could implement the gaming system into his online classroom to boost participation and enthusiasm. Another teacher thought introducing the gaming aspect could help motivate some of her special needs students as it was something that they were comfortable with and it was something that they already understood or could identify with in their lives.

Throughout the talk, I could see the gears turning. There are probably a lot more ideas that left the room that day or have been developed since eTech Ohio.

I discovered that the gaming concept in the classroom was not only useful but also fun. Students had something different from their traditional classroom settings and by offering XP, leveling up opportunities, and creating avatars, it all promoted the key intrinsic motivation factor.

INTRINSIC MOTIVATION

During my research in finding gaming techniques for classroom use and from preparing my eTech Ohio presentation, I came across an online book by Edward Vockell, Ph.D. called, *Educational Psychology: A Practical Approach* (<http://education.calumet.purdue.edu/vockell/edPsybook/>).

In the book, Vockell lists five different factors that encourage intrinsic motivation. These factors are challenge, curiosity, control, competition and cooperation, and recognition. Intrinsic is the key motivation factor that a teacher can help instill in a student.

If a student has intrinsic motivation, it's huge. That student studies because he or she wants to and realizes its importance. That student wants to do well in school, realizing the opportunities of hard work in the classrooms. And that student will read because he or she realizes it is beneficial or even enjoyable when researching or learning about a new topic.

If you take a look at these five factors and then look at Sheldon's gaming concept, you start to see the potential in his methods. Challenge is about setting goals and working toward those goals. So, having the XP chart, completing quests, and beating bosses all cover the challenges needed. As for curiosity, introducing the gaming concept itself stimulates the learner's interest. When I introduced options and choices for students when choosing their crafting activities and quests, it was to help students feel in control. By giving the students choices, they had more control over their learning or reinforcement on the materials covered in the class.

MINIGAMES

Competition and cooperation fits nicely into the gaming concept. Guilds can work together on group projects and other times, they can battle each other in the classroom. In my courses, I use student response systems, or "clickers," to test the understanding of certain topics. During these sessions, I will display a top point total leaderboard, only showing the top five or ten to avoid displaying low-scoring students.

After the individual leaderboard, I show the group leaderboard. From implementing this group leaderboard, I have seen students automatically help a puzzled group member and discuss the answers between themselves before submitting a response. In his book, Vockell discusses that learners like to compare themselves, but they also feel good when helping others. Implementing these minigames helped stress the competition and cooperation portion of the intrinsic factors.

Students have really enjoyed the student response systems. It's interactive, and they can work with others. Many students have expressed enjoyment in the clickers. The leaderboards brought the competition out in some students who were otherwise quiet. Students were also teaching others or explaining the answers to fellow students, which not only helped the perplexed student but also aided in the reinforcement of knowledge in the student offering the assistance.

Personally, another minigame I like is Ribbon Hero by Microsoft. Instead of learning different commands in the Microsoft Office Suite, students have to complete challenges. For each challenge, say, by making a bulleted list, they earn achievement points. Even from working in the program on general assignments, they receive achievement points. These points can be posted to Facebook as well, if a student chooses to enable that option. It's a great way to diverge from the traditional lecture and practice routine when working with computer applications.

Lastly, by having XP and levels, students can receive some sort of recognition, which is the final factor of building intrinsic motivation. Keeping an experience bar meter, congratulating on a character leveling up, or just having the students personally keep track of their progress, offers all kinds of opportunities for recognition.

Perhaps, an XP Hall of Fame, for students who earned the highest EP levels over the years?

LINK BOX

Hero Creator: www.ugo.com/games/superhero-generator-heromachine-2-5

Jesse Schell: Design Outside the Box: www.g4tv.com/videos/44277/dice-2010-design-outside-the-box-presentation/

Jane McGonigal: Gaming Can Make a Better World: www.ted.com/talks/jane_mcgonigal_gaming_can_make_a_better_world.html

Fun Theory Projects: www.thefuntheory.com

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First Edition Case Study 8

Waunakee Community High School

Aaron Pavao

Math and Computer Science

Waunakee Community High School

Waunakee, Wisconsin

ONE OF THE BEST innovations to the multiplayer classroom described in these early case studies was the use of achievement points. You are about to see an extremely well-worked out example. Tracking these achievements on the course wiki is terrific as well. The more we publicize our students' achievements, the more they take pride in them. The intrinsic reward is priceless.

The testing method is a fascinating example of allowing the students to learn by failing in repeated “attacks on the boss mob,” here embodied in the instructor.

This is the last of the case studies. It was my hope that in sharing my experiences designing the multiplayer classroom, I would challenge other teachers to come up with even better ideas. All of the case studies, even some we could not include in this book, have inspired me, as I hope they inspire you.

OVERVIEW

Following in the footsteps of Lee Sheldon, I have restructured my high school computer science courses as a game (see Figure A8.1). At the time of writing, the plan is still in its first year of implementation, so I am hesitant to draw any conclusions as yet. That said, there are certain trends that are emerging that I will include in this report.



FIGURE A8.1 Aaron Pavao.

My original intent was to structure the courses as a game, with four-player (student) teams. Players earn XP for taking tests, completing projects, contributing to the course wiki, and other tasks. Rather than use Sheldon’s direct level-to-grade system, I would use a set of levels that were each worth an increasing amount of XP, much the way any RPG works. Each student’s grade would be based on his or her level. Each progress or grade report would compare the level to a “perfect” level for that grading period, with the “perfect” level increasing with time. Single-semester courses were to go up to level 40, and full-year courses run to level 80.

In addition to computer science concepts, I teach the students to work together, helping one another toward a common goal. During the first semester course, students started in groups of three or four, then merged into groups of six to eight, and finally worked as a single, organized team working on different parts of a larger challenge toward a common goal.

EXPERIENCE POINTS AND LEVELS

One of the things that struck me about Sheldon’s system was that the goal was set before the game began. The students had a goal and a means of achieving that goal. Additionally, the students gained points in the class, in contrast to courses where they started with a perfect grade and watched it slip over the course of the semester. When I told students new to the computer science program that they were starting with an F as “level zero newbies,” I most often saw a look of determination rather than despair.

Immediately after implementing the system, I was struck that an exponential system would be a better draw than a linear one. Players would gain levels quickly at first, getting drawn into the sense of achievement, pulling them that much further toward each level. However, I ran into trouble when making the system compatible with the district’s standard 10-pts. grading scale. While the level would appear to comply with the standard, the actual number of XP would not. As a result, I chose to use a linear system, rather than an increasing one.

Each grading period (two progress reports, a quarter grade, and a semester grade) had targets based on the level each course should reach by the end of that period if they had a perfect record. Each student's grade was based on how close he or she came to this target level. This was mainly achieved by earning XP. Students could also gain "bonus" XP, points that were not included in the target calculation, for winning competitions, helping other students, contributing to the course wiki, and the like.

ACHIEVEMENTS

One of the first things that students requested was an achievement system, similar to those of Xbox Live or the trophies on the Playstation Network. We now have a set of achievements that are cocurricular. Achievements are not required of the class, and are intended to promote additional challenge, best practices, and good citizenship. Examples include the following:

- **Ace:** Ace a test on the first try.
- **Ace of Aces:** Ace five tests.
- **Achievement X:** Get ten other achievements.
- **Advanced Person:** Take the AP Computer Science test.
- **Code Poet:** Reach level 40 in Computer Science II.
- **Deliverator:** Complete all Lesson 3 labs and the Pizza Order Form optional lab.
- **Elite Coder:** Reach level 80 in AP Computer Science.
- **Fast Talker:** Be part of the first team to complete the Communication Challenge in Computational Thinking.
- **Flawless Victory:** Hit the master level at the end of the first or third quarter.
- **Jack of All Trades:** Complete and pass every computer science course.
- **Journeyman:** Reach level 40 in Computer Science I.
- **Master of All Trades:** Collect the Code Poet, Elite Coder, Journeyman, and Mastermind achievements.
- **Mastermind:** Reach level 40 in Computational Thinking.
- **Parental Advisory:** Parental unit attends parent–teacher conferences for computer science.

- **Rapunzel:** Tallest tower in the Marshmallow Tower Challenge in Computational Thinking.
- **Sweet Hack:** Impress Mr. Pavao with something.
- **Wikilluminary:** Make five good pages on the course wiki.
- **Wumpus Hunter:** Complete all Lesson 7 labs and the Hunt the Wumpus optional lab.

I also purchased a 1" button maker and created a button design for each achievement. Students who earn an achievement are given a button and have their name put on the course wiki on the page for the specific achievement. Students have taken to displaying their achievements on the straps of their backpacks.

The display of achievements is not the only way students have become involved. Students created a wiki page that assigned titles to each of the forty levels of the single-semester courses. They also implemented a "prestige" system for students who completed one course and then started again at level 0 in another course.

The list of achievements expands as the computer science program expands, and as students or I have a new idea for an achievement. I am also looking for ways to link achievements into other reward systems, such as Microsoft's achievement points or the local game stores' promotional program.

TESTING

I also modified Sheldon's test-as-boss-fight idea. In my classes, the only way to complete a test is when that test is perfect, and the student is given a number of "hearts" to complete the test.

Each time they come up during a test for corrections (metaphorically facing the boss monster), any incorrect answers cause "damage," taking away hearts, which are crossed off from their test sheet. The loss of each heart reduces the XP value of the test, starting with 1% of the full value and increasing with each heart. The minimum value of a test that is (eventually) completed perfectly is 60% of the full value.

The "damage" of submitting an imperfect test is based on the "weapons" they use: one heart base, plus one for taking the test in teams, plus one for using their notes. Additionally, students who take their test in a team can send only one member to be graded (called a "tank" by one student), thereby spreading the "damage."

Additionally, I offer a bonus to teams based on how well their teammates do on their tests. The intent was to use social pressure to persuade students to help and encourage one another. Unaccustomed to this sort of behavior, students present this mutual reinforcement slowly, but it does emerge.

EXCLUDED CONCEPTS

In creating this program, there were a number of things I did *not* want to include. I did not want to give awards for expected behaviors. For example, I do not offer any achievement or XP for attendance, as this is expected of high school students. Likewise, good classroom conduct is not rewarded with XP.

Another important feature is that XP, once awarded, would never be taken away. This design principle is in accordance with recent research that demonstrates that humans become irrational when it comes to losing something they have.

I also wanted to avoid direct competition that would have a negative impact on XP, which is to say student grades. In this I followed the model found in player-versus-player competition in massively multiplayer games like *City of Heroes* and *World of Warcraft*, where the victors might gain the spoils, but the conquered take no penalty. This is done through bragging rights, achievements, and bonus XP.

I also eschewed the idea of leaderboards. The idea is not entirely without merit, but not all students have a competitive spirit, and I prefer my courses to be accessible to as many students as possible. That said, students have created leaderboards on their own initiative, using them to track and rank level, test performance, achievements, and other sundry categories related directly or indirectly to their courses.

CONCLUSIONS

This is the first year of this particular curriculum. At the time of this writing, one and a half semesters into the program, it is too early to responsibly offer any real conclusions. Even so, we can make a few comparisons with previous years.

The first and most pronounced differences are the increases in attendance and grades. Another marked difference is that students are coming to me to make up missed work on their own volition, rather than needing their parents to urge them to do so or to advocate for them.

Another result has been an increase in enrollment in computer science classes for both the second semester of this year and for the following academic year. The first course in the computer science series is at capacity, and higher-level classes have likewise increased in enrollment.

The ancient deities of unintended consequences never sleep, and this program has not been immune to their attentions. The combination of this curriculum and modern real-time online grade reporting has resulted in each student's grade being reported as an F for most of the grading period. I have received a number of calls and email messages from parents who see the grade report and call to ask how their children can be failing right at the start of the semester. I have included a detailed description of the program for parents, and intend to record a descriptive video as well.



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Index

A

Achievements

- Introduction to the Study of Education (Intro to Ed), 291–293
- Kingdom of Cognosco, 106
- LMS, 284
- Texas Tech University, 313–314
- Waunakee Community High School, 325–326
- Waunakee Computer Science, 52

Achievers, 79–80

Action Research Project Builder (ARP), 297

Adventures in Gardening

- alpha testing, 245
- asset collection, 243–245
- beta testing, 245–246
- Bloomin’ rewards, 244
- design, 239–243
- intrinsic reward, 246
- preparation, 238–239
- production of, 237–238
- variable interval schedule, 243
- variable ratio schedule, 242

Agency, 38

Agile development, 228

Alpha testing, 123, 245

Alternate reality games (ARGs), xxii, 24–25

AMH 2010 course

- absences, 300
- CAT built, student preparation, 297
- experience, students, 300–301
- grades, student, 298
- Level Chart, 299
- prep score, 300
- student withdrawals, 297–298
- success rate, 298–299

supergroup meeting/Guild meeting, 297

voting, gaming structure, 301

And Then There Were None (aka Ten Little Indians) (Christie), 215

Angry Fashion Crusaders, 123–124, 129

Applied Communications class, 175

ARGs, *see* Alternate reality games (ARGs)

ARP, *see* Action Research Project Builder (ARP)

Artificial intelligence (AI), 36

The Art of Dramatic Writing (Egri), 114

Asset collection, 243–245

Association for Supervision and Curriculum Development (ASCD), xix

Attention deficit hyperactivity disorder (ADHD), 202, 208

Auctions, Science Club, 275

Audience, Behavior, Condition, and Degree (ABCD), 217

Augmented reality (AR) games, 8

Avatars

- consistency, game design, 37–38
- level 1, 291
- names, 37
- NPC, 113
- Ohio Valley College of Technology, 319
- online representation, a participant, 12
- visual representation of, 116

B

Backstory, 116–117

Baylor, Matthew, 304

Beta testing, 245–246

Betrayal, 132, 134

Biology Bucks, 273, 275

Biology Quest, 272–273

Blackboard Learning System, 82
 Blackthorn Manor, 133
 Boss fight, 49–50
 Boss Mob, 41
 Boss raids, 12
 Brent, Wayne, 279–281
 Broadband penetration, 224
 Broussard, Jessica, 289, 290
 Bruner, Jerome, 100
 Buchanan, Denishia, 271–272
 Buff, 81
 Butler, Kathleen A., 214

C

Calhamer, Allan B., 228
 Camping, 60
 Castronova, Ted, 261
 Championship, 178
ChangingMinds.org, 66
 Character and Story for Games
 Archipelago 2, 150–152
 Victorian London, 153–154
Character Development and Storytelling for Games
 (Sheldon), 215, 231, 261
 Children
 Classcraft, 19
 experimentation, 11
 learning through play, 11
 pedagogy development, MFR, 164
 treating mistakes, 11
 Christie, Agatha, 215
The Chronicle of Higher Education (Sheldon),
 271–272
City of Heroes, 327
Civilization, 16–17
 Class
 chair zones, 34–36
 class time, 84
 farming, 41
 game, xvii
 guild performance, 147
 guild size, 84
 longer classes for extra credits, 85
 physical space usage, 34
 preparation, 297

 raid strategies, 146–147
 social interactions, 289
 Classcraft, 18–19, 105, 176–178, 217
 Classroom assessment techniques (CAT), 295, 297
 Code-playing technique, 133
 Collaboration, 152, 174, 175
 Collateral learning, xxiv
 Collection Book, 70
 “College Teaching” class, 312
 Columbuskolen
 Curriculum as Game, 205–208
 The Progress Wall, 205, 207
 Quest Lines, 205–206
 results, 208–209
 role-playing sessions, 202–203
 RPG sessions, 202–203
 The School at Play-project, 202, 209
 Social Space as Game, 204–205
 TMB, 204
 WALF, 204
 Wall of Wisdom, 208
 WALT, 204
 Common Formative Assessments (CFAs), 306
 Community, 62–63
 Competition, 125–127
 Concept documents, 55, 56, 84
 Consistency, 114, 118
 Costa Niebla, 186
 Couch Competitions, 178
 Creasman, Carl E., 295, 296
 Create, Learn, Socialize, and Explore, 259
 Custom-made tokens, 50–51

D

Daily Ladder, 299
Dark Age of Camelot, 16
 Deliverable, 230
 Designing Interactive Characters
 Angry Fashion Crusaders, 123–124
 backstory, 116–117
 consistency, 118
 final project preparation, 123
 format section, 113
 Grading Procedure, 114–115
 guild’s message, 122–125

Maya, 113
 midterm boss mob, 127–128
 midterm prep guild vs. guild competition, 125–127
 presentation quests, 123–124
 Scouting Expeditions, 115
 snow leopard, 128–131
 Solent University
 betrayal, 132
 data, 138–139
 HE unit, 133–136
 RP sessions, 136–137
 Spring 2011 syllabus, 110–112
 three-dimensional character, 113–114
 3ds Max, 113
 Valeria map, 119–121
Designing Virtual Worlds (Bartle), 55, 79–80
 Design Innovate Communicate Entertain (DICE)
 Summit, 5
 Downloadable content (DLC), 81
Dungeons & Dragons, 32, 103, 118

E

The Eddie, 292, 294
 Educational games, 14
Educational Psychology: A Practical Approach
 (Vockell), 321
 Educational software, 13
 Edutainment, 13, 16
 Egri, Lajos, 114
 Empathy Acres, 34
 End of Course (EoC) Practice Test, 276
 English auction, 275
 Entertainment Software Rating Board (ESRB),
 221–222, 224
 eTech Ohio Conference, 320, 321
 Ethos, game idea, 143
Everquest, 44
Exodus to the Virtual World (Castronova), 261
 Expansion packs, 81
 Experience points (XP), xix, 5–6, 8, 33, 40, 48, 50,
 56, 105, 145, 152, 275, 283–284, 292–293
 Experiential Learning Theory, 213
Exploding Kittens, 253
Explore Like a Pirate (Matera), 217
 Explorers, 79–80

Extrinsic motivation, 64
 Extrinsic rewards, 66

F

Farber, Matthew, 216–217
 Farming, 41
Farmville, 291, 311
 Feedback Farms, 35
 Fiero, 12
 Fleming, Neil D., 214
 Florida Gateway College
 acceptance of mission, 196
 evaluation, 198
 grading policy, 198
 learning activities, 198
 online participation, 200
 results, 198–200
 story-based game, 195–197
 Format section, 113
Fortnite Battle Royale, 12, 55
 Four player personality types, 79–80
 Frost lizard, *see* Midterm boss mob
 FunTheory, 317

G

Gamasutra (magazine), 4–5
 Game
 characters and narrative, 142
 definition, 141
 design
 Game Master, 228–230
 preproduction, 230–232
 scrum, 227
 story, 233–236
 theme, 232–233
 platforms, 143
 tower defenses, learning, 143
 Game Attributes and Mechanics in Education
 (GAME)
 challenges and solutions, 284–286
 design, 282–284
 improvements, 286–287
 strengths, 284
 version 1, 281–282

Game-based learning, xviii, 14, 175, 176, 195, 265
 vs. gamification, xix
 software, 18–20

Game Central, 253

Game Master (GM), 7, 36, 56, 97, 116, 134,
 228–230
 teacher, 228–230

Gameplay
 feedback, 255
 flexibility, 252–254
 lore, 250–251
 rules, 251
 scoring, 251–252

Gamers learning, 214–215

Games and Simulation Arts and Sciences (GSAS)
 program, 9
 curriculum, 148
 coursework, wide range of interests, 85
 focus on careers, 85
 guild balancing, 85
 guild size, 84
 longer classes for extra credits, 85
 time, 84

Gamification, definition, 5

Gamify Your Classroom (Farber), 216–217

Gaming the Classroom, 317

Gaming the Classroom Website, 318

Gassoit, Ken, 312

The Glass Menagerie (Williams), 24

GM, *see* Game Master (GM)

Go-Fish, 181

Grading procedure, 5, 114–115, 166, 186

Gregorc, Anthony F., 214

Grimes, David M., 318

Gross, Denise, 194

Guilds
 definition, 32
 leader, 40
 leaders, 28
 meeting, 297

H

Hackathorn, Connie, 279–281

Hagvall, Martin, 165

Hat of Knowledge, 126

Hed-Banz, 181

Hero Creator, 319

Her Story, 181

HE unit, 133–136

The History of Video Games, 194, 195, 198

Honey, Peter, 213

Hopper, Grace, 46–47

Huguet, Marie-Pierre, 86, 96

Intense competition, 126

Interactive Characters & Narrative
 (Archipelago 1)
 assignments and rules, 145
 ethos, 143
 games I, writing for, 148
 games II, writing for, 148–149
 guilds performance, 147
 lost frontier, 143
 midterm prep PvP, 147
 mystic islands, 143
 the newcomers, 143
 perfection points, 146
 raid strategies, 146
 shades of gray, 144
 syllabus, 142–143
 time management, 145

Interactive Media & Games, *see* *Sanctuary
 of the Sun*

Interface Island, 35

Intrinsic motivation, 66, 321

Intrinsic reward, 66

Introduction to Game Design, RPI
 Bartle's four player personality types, 79–80
 buff, 81
 Fall 2010 syllabus, 76–79
 final bosses, 83
 grading procedure, 81
 high fives and hugs, 91
 intrinsic reward, 91, 94
 LMS village map, 82–83
 mapping gamer references to real-world
 elements, 79
 prototype, 93–95
 pullers, 92

- raid strategies, 83
- random mob attacks, 90
- Sage laboratory, 87
- teaching game studies, 75–76

Introduction to the Study of Education
(Intro to Ed)

- achievements, 291–293
- anonymous feedback, 294
- avatar creation, 291
- award winners, 292
- changes, 293–294
- classroom facilities, 290
- course, nature of, 291
- gamers, 290–291
- interaction and feedback, 292
- metagame, 293
- students, 289–290
- XP, 292–293

J

Jacob, Stacy A., 312
 Jenga Poetry, 180
 Jigsawing, 314
 Just Press Play, 259, 260

K

Kent, Steven L., 195
 Killers, 79–80
 Kingdom of Cognosco

- achievements, 106
- basic structure, 104–105
- cards, trading game, 106
- crest, 103
- game-based classroom map, 108
- game manual, 104
- leveled quests, 105
- Quest Ion VI, 103
- results, 107–108
- WebQuest, 107

Kjellow, Tore, 201
Knowledge Quest (KQ), 304–309
 Kolb's Experiential Learning Theory, 213
 Koster, Raph, 261
 k-strategists, 274

L

Learning

- divided, 144
- dividing up, 143
- made interesting, 23–24
- objectives
 - gamers learning, 214–215
 - students learning, 213–214
- play, 11
- reciprocal experience, 101
- through games, 174–178, 180–181
- Vygotskian framework, 98
- ZPD
 - internalization, 98–99
 - knowledgeable others, 98
 - recursiveness, prior stages, 99–101
 - self assistance, 98

Learning Management System (LMS), 18, 19, 82, 95, 119, 121, 164, 281, 285–286

- interactive version, 121
- village map, 82–83

Lee, Elan, 253
 Leeroy Jenkins, 60
 Le Guin, Ursula K., 234
 Level Chart, 299
 Level Guides section, 186
 Leveling system, 271
 Lieberman, Max, 279–281
 Lightweight software development, 227
 Lim, May, 312
 Lingo, 319–320
 Locke, John, 14
 Lore, 250
 Lost frontier, game idea, 143
 L337 speak, 28

M

Macbeth, 174
 Macguffin, 189
 MacPhail, Angus, 189
Mafia Wars, 311
 Marked Tree High School, multiplayer classroom

- Biology Quest, 272–273
- data analysis, 276

- Marked Tree High School (*cont.*)
 questing, 273–275
 rewarding system, 275
 student opinions, 276
- Marshmallow Challenge, 178
- Massively Multiplayer Online (MMO), xx, 8, 24, 33, 39, 55, 59, 60, 62–63, 80
- Massively Multiplayer Online Role-Playing Game (MMORPG), xx, 24, 291
- Mastery learning, 281
- Matera, Michael, 217
- Maya, 113
- McGonigal, Jane, 261, 317
- McKinney, Evan, 68
- Mega Shine award, 292, 293
- Metagame, 249, 293
- Midterm boss mob, 127–128
- Midterm prep guild vs. guild competition, 125–127
- Midterm prep PvP I, 154
- Milestones, *see* Deliverable
- Minecraft*, 88, 89
- Minigames, 321–322
- Miniquests/side quests, 291
- MMO, *see* Massively Multiplayer Online (MMO)
- Modification/Mod, 88
- “Most Innovative Teaching” award, 139
- Motivation, 63–64, 321
- The Mourning Bride* (Congreve), 80
- Multiplayer classrooms
 grade level, xviii
 Marked Tree High School
 Biology Quest, 272–273
 data analysis, 276
 questing, 273–275
 rewarding system, 275
 student opinions, 276
 students opinions, 276
- Multiplayer Game Design
 balancing, guilds, 62
 communication, 57
 community, 62–63
 grading and attendance, 56
 guild vs. guild PvP session, 64–65
 motivation, 63–64
 Radio/TV Center, 61
 Spring 2010 syllabus, 57–59
 student collaboration, 57
 vs. traditional methods, teaching, 55
 XP leveling, 59
- Multiplayer online games
 audible chat, 27–28
 flexibility, 24–25
- Mumford, Alan, 214
- Mystic islands, game idea, 143
-
- ## N
-
- Needs Rez, 40
- Neverwinter Nights 2*, 123
- The newcomers, game idea, 143
- Non-player characters (NPC), xxiii, 113, 116, 122
- Northeast Polytechnic Institute, 186
- NPC, *see* Non-player characters (NPC)
-
- ## O
-
- Ocean of Immersion, 34
- Ohio Valley College of Technology
 avatars, 319
 choices, 319
 eTech Ohio Conference, 320
 experience points, 318–319
 Gaming the Classroom, 317
 Gaming the Classroom Website, 318
 intrinsic motivation, 321
 lingo, 319–320
 minigames, 321–322
- Oncourse, 82
- The Oregon Trail*, 15
- Over-justification effect, 66
-
- ## P
-
- Paper prototype, 93
- Pavao, Aaron, 90, 324
- Peer review, 40
- Perfection Points, 146
- Personal quick response (QR) codes, 259–260
- Pervasive game, xxi
- Phat 100t, 125
- Physical dimension character, 114
- Pick-up groups, 62

Pigskin Poker, 42
 Pilot program, 174–175
 Plato, 13, 14
 Play
 classroom, 12
 learning, 11
 treating mistakes, 11
 Player vs. environment (PvE), 36
 Player vs. player (PvP), 36
Pokémon Go, 8
 Portal 2 Level Editor, 149
 Practicum/field work, 291
 Preproduction, 230–232
 Programmed Logic for Automated Teaching
 Operations (PLATO), 13, 14
 The Progress Wall, 205, 207
 Prototype, 93–95
 Psychological dimension character, 114
 Puller, 92
 PvE Strategies, 169, 170

Q

Quest chains, 125
 Quest givers, 274
 Questing, 273–275
 Quest Lines, 205–206
 Quest log booklet, 274
 Quests, 62
 Quest to Learn, 20

R

Raid Leader, 40
 “Random Events” function, 178
 Rating system, 221–222
*Reality Is Broken: Why Games Make Us Better
 and How They Can Change the World*
 (McGonigal), 261
 Rensselaer Polytechnic Institute (RPI), 9, 56, 67, 75
 Rewarding system, 275
 Rewards, 259
 Rezzly, 217
 Robert Louis Stevenson Middle School
 classroom, 303–304
 Knowledge Quest, 304–309

RPG, 309
 Role-playing game (RPG), 6, 309
 GM, 7
 Royce, William R., 227
 RPG, *see* Role-playing game (RPG)
 RP sessions, 136–137
 r-strategists, 274

S

Sakai, 82
*Sanctuary of the Sun: The Riddle of a Lost
 Civilization and the Intrepid
 Adventurers Who Solved It* (Plato),
 xxiv, 184–185, 187
 Schell, Jesse, 5–6, 95, 317
 The School at Play-project, 202, 209
 Scouting Expeditions, 115
 Scrum, 227
 Secret ballot, peer review, 40
Senet, 14, 37, 39
 Shades of gray, game idea, 144
 Sheldon, Lee, 174
 Shine award, 292, 293
 Silent auction, 275
The Skeleton Chase, xxii, 244, 252, 253
Skeleton Chase 2: The Psychic, xxii, xxiii, 262
Skeleton Chase: Warp Speed, 252–253
Skeleton Chase 3: Warp Speed, xxii, 223
 Skill points, 284
 Snowball effect, 71
 Snow leopard, 128–131
 Socialization, 175, 178–179
 Socializers, 79–80
 Sociological dimension character, 114
 Solent Students’ Union, 139
 Solent Teaching and Recognition
 Awards (2019), 139
 Solent University
 betrayal, 132
 data, 138–139
 HE unit, 133–136
 RP sessions, 136–137
 Solid Guild Crafter, 40
 Solo camping, 60
 Souza, Charles, 304

- So You Want to Be a Millionaire?*, 64, 88
 Spring 2010 syllabus, 57–59
 Spring 2011 syllabus, 110–112
 Srinivasan, Vinod, 14
 Stalk, 123
Stardew Valley, 12
Star Trek: Infinite Space, 24
 Stat increases, 73
 Sticker chart
 - academic effort-based system, 71
 - character builds, 73
 - implementation, other classes, 72
 - kindergarten students, 68–69, 74
 - leveling up, English conversation, 70–71
 - negatives, 71
 - Pokemon, sticker rewards, 69–70
 - positives, 71
 - presentations, class, 56–57
 - results, 71
 - tiered item system, 72–73
 Story-based game, 195–197
 Student-centered classroom, 180
 Student needs, 218
 Students
 - choice, 179–180
 - demographics
 - age, 221–223
 - gender, 223–224
 - income, 224–225
 - learning, 213–214
 Sudbury model, 214
 Supergroup meeting, 297
Super Mario, 88, 89
 Super Shine award, 292, 293
- Theme, 232–233
 Theory and Practice of Game Design, 75
 - agency, 38
 - choosing and naming their avatars, 32
 - consistency, game design, 38–39
 - fall of 2008 syllabus, 25–27
 - fall 2009 syllabus, 29–31
 - flexibility, 24–25
 - grading procedure, 31–34
 - grouping students, 36
 - guild leaders, 28
 - l337 speak, 28
 - names, 37
 - Pigskin Poker, rules, 42
 - player's performance, 44
 - publishers, 43
 - PvE, 36
 - PvP, 36
 - random factor, 32
 - roles and responsibilities, 32
 - secret ballot, 40
 - trash-talking, 28
 - wiped, 39*A Theory of Fun* (Koster), 261
 This Matters Because (TMB), 204
 3D GameLab, xviii, 18
 Three-dimensional character, 113
 3ds Max, 113
 Three-month development cycle, 230–231
 Tolkien, J.R.R., 118
 Tower defense games, 143
 Traditional RPG, 283
 Trash-talking, 25
 Tried-and-true game mechanics, 286

T

- Tabletop games, 228
 Teaching with Technology, 280, 281, 285
 Texas Tech University
 - achievement points, 313–314
 - assignments, 314
 - classes, 313
 - “College Teaching” class, 312
 - equip, 311
 - “get-to-know-you” activity, 314

U

- The Ultimate History of Video Games: From Pong to Pokémon* (Kent), 195

V

- Valentine High School
 - choice, 175, 179–180
 - collaboration, 174, 175
 - learning through games, 174–178, 180–181

socialization, 175, 178–179
 team building, 178–179
 Valeria, geography of
 guild Aesir, 119
 LMS interactive version, 121
 map of, 120
 Rift, 120
 Variable interval schedule, 242, 243
 Variable ratio schedule, 242
 VCC success level, 301
 The Verbal Vale, 35
 Video Game Level Design, 148–149, 154
 ViroSci, 186
 Virtual reality (VR) games, 8
 Virtual world, 55
 Visual, auditory, reading/writing and kinesthetic
 (VARK) model, 214
 Vocabulary Dominoes, 176–177
 Vockell, Edward, 321
 Vygotskian framework, 98

W

Walden, 173, 181
 Wall of Wisdom, 208
 Wandering Wastes, 35
War and Peace, 174
 Waste of Rations, 40
 Waterbound, game idea, 144
 Waterfall method, 227
 Waunakee Community High School
 achievement system, 325–326
 experience points and levels, 324–325
 leaderboards, 327
 testing, 326
 Waunakee Computer Science
 achievements, 52
 alliances, 47, 48
 assignment, 48
 boss fight, 49–50
 challenges, 48–49
 custom-made tokens, 50–51
 guilds, 47
 leveling, 47–48
 nations, 47
 outcomes, programs, 52

side quests, 52
 tokens privileges, 50–51
 XP, 48
 We Are Learning To (WALT), 204
 We Are Looking For (WALF), 204
We Rule, 309
*What Was Mubarak Thinking? Inside the Mind of a
 Dictator* (Boehm), 28
Where in the World Is Carmen Sandiego?, 16, 17
Wii Sports, 291
 Wikipedia, 14
 Wipe, 39
 Worcester Polytechnic Institute (WPI), 82, 165, 165
 World of Classroomcraft, 317
World of Warcraft, xx, 6, 7, 25–26, 55, 60, 289, 309, 327
 Writing characters, games I
 classes, 171–173
 Grading Procedure, 166
 PvE Strategies, 169, 170
 raid strategies, 168–171
 syllabus, 166–168
 Valentine High School
 choice, 175, 179–180
 collaboration, 174, 175
 learning through games, 174–178, 180–181
 socialization, 175, 178–179
 team building, 178–179
 Writing characters, interactive media; *see also*
 Sanctuary of the Sun
 Columbusskolen
 curricular activities, 205–208
 The Progress Wall, 205, 207
 Quest Lines, 205–206
 results, 208–209
 role-playing sessions, 202–203
 RPG sessions, 202–203
 The School at Play-project, 202, 209
 social actions, 204–205
 TMB, 204
 WALF, 204
 Wall of Wisdom, 208
 WALT, 204
 Expert Health Bar, 190
 Florida Gateway College
 acceptance of mission, 196
 evaluation, 198

Writing characters, interactive media (*cont.*)

- grading policy, 198
- learning activities, 198
- online participation, 200
- results, 198–200
- story-based game, 195–197
- Grading Procedure section, 186
- Level Guides section, 186
- Macguffin, 189
- messages from employers, 191–192
- La Montaña del Juegos, 185
- syllabus, 184
- unforeseen events, 189–190

X

XP, *see* Experience points (XP)

Z

Zone of proximal development (ZPD)

- definition, 98
- internalization, 98–99
- knowledgeable others, 98
- recursiveness, prior stages, 99–101
- self assistance, 98