Scholar's Quest

A Digital Game-Based Learning Project for Distance Learners

Practicum Report

EDIT 242, Prof. Viajar

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Scholar's Quest: A Digital Game-Based Learning Project

Introduction

Because I intend to teach in higher education, I wanted my practicum to be in a college setting. I'm interested in the use of games and simulations for instruction, so I hoped to find a project along those lines. Before my practicum, I discussed several possible projects with Curtis Pembrook, Lab Faculty Specialist/Instructional Designer in the Instructional Technology and Services department at Mission College. For more about Mission College, see Appendix A. We eventually settled on a project with the goal of helping students to be successful distance learners.

Mr. Pembrook felt that the current materials to prepare distance learners were ineffective, in part because they required only reading and taking surveys. He wanted the materials to be more engaging and interactive, and he believed that presenting the materials in the context of a game or simulation would help to engage the students.

Mr. Pembrook felt that he had a good sense of the audience for this project, so we agreed to forego a learner analysis. We chose a rapid prototype model to guide our work. This model is commonly used to develop online materials, and it is the instructional design model most similar to game design practices. We decided that the technical architecture would be modular to facilitate customization and expansion, and we set as our goal a fully functioning game engine and a prototype module of instruction.

We identified a core set of technical requirement for the project as well as some preliminary content requirements.

Technical Requirements

- Accessible via a web browser.
- Modular and easy to modify, expand.
- Send SCORM-compliant results to LMS (Angel).
- Section 508/ADA compliance.

Content Requirements

- Computer hardware basics.
- Windows basics.
- Learning formats at Mission College (classroom, distance, telecourses)?
- Study skills.
- Time management skills.

Research

My first task was to research best practices in preparing students for distance learning. Using Google, I searched a variety of combinations of the following terms: learning, distance, online, success, academic integrity, cheating, plagiarism, time management, study skills. I examined many web sites and eventually selected seven to review in detail. These were:

- Austin Community College
- Buck County Community College
- Long Beach Community College
- Rio Salado College
- Shoreline Community College
- Taft College
- University of West Florida

In particular I made notes about the content on the sites and any especially interesting instructional methods. See Appendix B for these review sheets. I like to use the web to manage projects and communicate, so I created a simple web site to post my planning and design documents. See http://www.webgrok.com/sjsu/EDIT_242/.

Mr. Pembrook and I met to discuss my research. We especially liked the "Time Pilot" simulation that is part of Long Beach Community College's S.I.D.E. (Success In Distance Education) project (http://de.lbcc.edu/sideroad/srSub_3_1.html). "Time Pilot" is Flash-based with video clips. The player selects one of three failing students and listens to his problems. Then the player jumps back in time and selects strategies to help the student get a better grade. The interface is well designed, the video clips are brief and used to good effect, and the concept and execution create an enjoyable user experience.

Planning

We decided that the next step would be to brainstorm metaphors for distance learning. A good metaphor would help students relate to distance learning, and it would bind together the several content areas for a consistent user experience. My task was to come up with a list of metaphors that may be applied to distance learning and to brainstorm on their potential for development as a game/simulation.

I decided on three general metaphors: Distance learning as journey, as construction, and as exploration. Within each of these I listed possible vehicles for the metaphor that might translate into a game. See Appendix C for details.

Mr. Pembrook wanted to conduct a focus group/brainstorming session with some teachers from one of his classes. Unfortunately he was never able to schedule this

meeting, and we lost a few weeks of design/development time. I decided to move forward by selecting a couple of concepts and developing them in more detail to give a better idea of my vision and approach. My first choice was the role-playing game with a journey metaphor, which I called "Scholar's Quest." My second choice was within the exploration metaphor. I decided on a variation of the mystery theme, which I called "AIO: Mission College." Descriptions of both are below.

Selected Metaphors/Vehicles as Game Concepts

RPG Adventure: "Scholar's Quest"

Description

Scholar's Quest is a Flash-based, single-player, scrolling adventure game (inspired by Kingdom of Loathing). The student moves the Novice avatar around the screen, navigating obstacles, interacting with characters, collecting scholarly artifacts, and completing tasks assigned by Master Scholar. Along the way the student learns about distance learning, study skills, and time management and progresses through levels from Novice to Scholar.

After a brief orientation to the Academy of Scholars by Master Scholar, the student is directed to visit the Lab of Computing and the Hall of Study, where she learns skills and completes assessments. Skills are visible as meters showing the student's progress. Once the player has completed the assigned tasks, she is free to explore the Academy and interact with non-player characters. Non-player characters usually give her distance learning strategies in the form of scrolls. Once the student has acquired the

appropriate number/type of scrolls, she is summoned by Master Scholar. He presents her with a quest which she must complete. This is the basic mechanic for both game play and learning: acquire facts, concepts, and principles and then apply them to solve scenario-based problems.

Instructional modules are presented as quests for the student to complete. An instructional module should utilize a relevant metaphor to maintain student engagement with the game world and should facilitate the use of scrolls as a strategy by the student. For example, a proposed instructional module on procrastination uses a swamp as metaphor. To access this module (quest), the student must first explore the Academy of Scholars and obtain the necessary scrolls. Once she undertakes the quest, the student must navigate her avatar through the swamp, dealing with quick sand, snakes, and alligators that confront her with scenarios related to procrastination. She must select the appropriate scroll (strategy) to deal with the present problem. Incorrect responses negatively impact her skill meters, and too many incorrect responses send her back to the start of the swamp to try again.

Mystery: "AIO: Mission College"

Description

AIO: Mission College is an HTML-based, scripted mystery game in a comic book style. The student plays Felipa Marlowe, the young Academic Integrity Officer (AIO) at Mission College. She is responsible for investigating cases of suspected cheating, plagiarism, etc. She also takes a proactive approach to her job by looking for students who are in academic danger (low grades, heavy loads, lots of absences) and stepping in to

counsel them. She helps them by prescribing appropriate study and time management skills, by helping them to assess their knowledge of computer hardware/software, etc.

The player will select a case and read a review of the problem. She may also choose to review the student's academic history, current schedule, and other information. She then selects from several possible actions, depending on the case. She may talk (in person or on her phone) to the student or the student's friends and teachers (these could be video if desired). She may "tail" the student and watch for suspicious behavior. In the end, she must determine the best interventions to help the student.

Discussion

Mr. Pembrook and I discussed these two game concepts. We decided that "AIO" focused too much on academic integrity and we would need to expand its scope in some way. We liked the familiar game aspects of "Scholar's Quest" and its potential to engage the students and motivate them to complete the lessons. We selected it for prototype development and agreed that I would write design documents to guide the project and then begin development on a game engine and simple prototype with one module of instruction. The prototype would provide proof of concept and provide the foundation for the development of the modules.

Prototype Design/Development

Design Research

I found several examples of game design documents from which I drew to structure one for Scholar's Quest. The topic areas include: Description, Goal, Target

Audience, System Requirements, Controls, Levels, Meters, Objects, Characters, and Locations. I added Pedagogical Approach to ensure that the design is anchored in learning theory and practice. In each of these areas I attempted to describe as fully as possible my vision of the game. See Appendix D for the complete game design document.

While working on this project, I was also writing a research paper on instructional game design for another class, which was fortuitous because that research strongly informed my thinking regarding ways in which the practices of instructional design and game design overlap. I also discovered that the AECT conference this October includes 27 sessions on games and simulations. That got me thinking about ways to use this project to conduct research on the effectiveness of games for learning. For example, we will probably make the instructional content of the game modules available in text format, in part to comply with 508/ADA requirements. We could randomly select some students to play the game and others to read the text only; then we could compare the results for statistically significant differences.

Technical Design

Early in the project we decided that the game needed to be modular for two basic reasons. First, it was clear that this project would take much more than the 90-hour minimum standard for the practicum, yet development needed to continue even if I were no longer involved. Second, we wanted the game to be easy to modify and expand with more instructional modules in the future.

We had already chosen Flash for our game format, so I researched and experimented with ways to achieve our desired modularity. I knew from previous

experience with Flash that I could create a base movie with an "engine" that handled the fundamental mechanics of the game, including loading other movies into different levels of the Flash player. I also knew that I could dynamically load data from either a database or a text file and that Flash could now load and parse XML data. An XML document is a text file with structured data in the form of tags with content, not unlike HTML except that the tags in HTML tell you almost nothing about the content within those tags. I tested loading XML by creating a basic Flash movie that imported a simple document XML.

I was pleased with the results and decided to use XML in at least three ways: 1) to identify available instructional modules; 2) to identify each module's attributes and requirements; and 3) to contain "dialogues" with non-player characters. I planned to utilize conditional branching in dialogues typical of digital role playing games such as Sierra's vintage "King's Quest" and LucasArts' "Monkey Island" to current video games such as "Jade Empire." See Appendix E for more information on the technical architecture and a process flow diagram for dialogues.

Development

Next I obtained some Flash game programming books looking for best practices and reusable code. I drew some crude objects and animations and used them to experiment. I copied code, modified code, and wrote my own code to piece everything together into an early prototype. This process took over 30 hours and resulted in a first version with many game elements but no non-player characters or learning interactions.

My next step will be to add some non-player characters, refine the structure of the XML for dialogues, and write code to load the dialogue and present it in an interactive

format. At that point it will be ready for some early play-testing (formative evaluation) focusing on the game mechanics. I want to be sure the interaction is as intuitive as possible and that the game feels fun and compelling. The focus at this point is on the game play, not the learning. A common criticism of educational games is that they aren't fun, i.e. they are just instructional content dressed up to look like games. Our goal is that the learners will be so engaged in game play that they will forget they are studying.

However, as expressed in the game design document, instructional strategies will be embedded in the game. The interactions with non-player characters will result in the player obtaining various scrolls with learning strategies related to the instructional modules. Once the player has received the appropriate number/type of scrolls, the instructional module will become available as a "quest" for the player. For example, there might be five scrolls related to time management skills. Obtaining those scrolls will make the time management quest available. That quest will present challenges to the player that require him to select the best scroll (i.e. apply a strategy) to avoid or overcome the problem. In the end the player will be able to print and/or email the content of the scrolls and have all of the strategies available for real-life situations.

When a full working version of the basic game is finished, I'll create templates for instructional modules and XML files along with instructions for creating new modules and incorporating them into the game. We hope to have the game finished late this summer for use by the incoming class in the fall.

Appendix A

Background

Mission College began its 1979-80 academic year with 3,500 students at its present site in Santa Clara, north of the Bayshore Freeway (101) at Mission College Blvd. and Great America Parkway. Approximately 11,000 students attend classes at Mission College. Its facilities include a new Campus Center housing a state-of-the-art Technology Center, a $3.1 million gymnasium, and an Electro-Mechanical Lab (donated by Intel). Mission also leases excess parcels of land close by to retail and restaurant businesses and a movie theater complex.

Mission College mission statement

http://www.missioncollege.org/gen_info/about.html

Mission College is an open access community college serving the ever-changing educational and economic development needs of Santa Clara, Silicon Valley, and the larger community. Seeking to develop community leaders and global stewards in a competitive world economy, the college provides transfer, degree, and certificate programs in lower division arts and sciences; community, career, and vocational education; and educational opportunities in basic skills and English as a Second Language. To accomplish its mission, the college provides the most advanced academic and technological resources, comprehensive student services, and enriching aesthetic experiences to help students succeed and to participate responsibly in a democratic society.

Mission College Instructional Technology and Services

http://www.missioncollege.org/technology/index.html

Staff and Faculty

- Mike Fee
  Telecommunications/AV Multimedia Specialist
- Patrick Ly
  Server Systems Administrator
- Gregory Shaw, Interim
  TV Studio/Videoconferencing/Web Conferencing
- Randy Wu
  Senior Desktop Support Technician
- Patrick Hudak
  Academic Department Chair
  Lab Faculty Specialist/Director, Instructional Labs
- Curtis Pembrook
  Lab Faculty Specialist/Instructional Designer
- Helen Sun
  Lab Faculty Specialist/Director, Technology Center
- Cindy Vinson
  Distance Learning Coordinator

Facilities and Services

- Audiovisual Services
- Computer Labs
- Distance Learning - opens new window
- Instructional Design
- Instructional Television Services
- Videoconferencing
- Multimedia
- Technology Center
- Web Services

Distance Learning

http://missioncollege.org/distlearn/index.html

Highlights of the 2004-05 year include the following:

- A total of 146 distance learning courses serving approximately 3900 students.
- 647 FTES representing approximately 8% of the total FTES at Mission College.
- An increase of approximately 300 students from the previous year.
- An increased number of faculty using distance learning technologies to support their classroom-based instruction.
- A continual focus on faculty development through focused workshops designed to enhance curriculum by using technology and sharing best practices.
- Development of linked "course pages" providing faculty with an easy means to communicate information about their distance learning course to students before classes begin.
- Selection and board approval of a district-wide learning management system.
- Distance learning user groups to promote best practices.

Appendix B

Austin Community College

http://dl.austincc.edu/

General Information

- What is distance learning?
- Delivery modes and instructional technologies
- Passport to Success (see below)

Passport to Success

http://dl.austincc.edu/workshops/passport/

Hour-long interactive presentation on succeeding in distance learning. Uses a journey metaphor with a passport that gets stamped as the student completes various sections. Lots of embedded video clips. Interesting idea but not well executed.

This workshop is designed to help you:

- become informed about Distance Learning to determine whether this type of course is for you
- become aware of the tools and resources available to you as a Distance Learning student
- be successful in your Distance Learning course

Student Support

- Getting started with dl
- Learning styles self-assessment: http://dl.austincc.edu/students/selfassess.htm
- Technical skills checklist: http://dl.austincc.edu/students/techcheck.htm

Other Links:

- LMS: Blackboard - http://itdl.austincc.edu/blackboard/
- FAQ: Distance learning - http://dl.austincc.edu/students/FAQs.htm

Bucks County Community College

http://www.bucks.edu/online/dlresources/index.htm

Choices and Decision Making

Determine your goals.

- Counselor & Career Center
- Transfer & Job Center
- Credit Courses
- Non-Credit Courses

Distance Learning

- Introduction
    - How do dl students differ from on-campus students?
    - What is the difference between distance learning and online learning?
- What to Expect Expect to learn the same material that you would in a face-to-face class.
    - Expect to spend on average 9-12 hours per week per course. Just because "classroom" time is greatly reduced, it does not mean that learning time is similarly reduced.
    - Expect to have assistance from your instructor. Distance Learning does not mean that you are on your own. Your instructor is available to assist and guide you in your learning and answer your questions throughout the semester.
- Skills for Success
    - Study Skills [http://www.bucks.edu/~specpop/studyskills.htm]
    - Managing your time and study environment
        - Reading college texts
        - Listening, note-taking, and using visual organizers

        - Research and writing papers
        - Taking tests
    - Tips
        - **Do...**
        - Manage your time
        - Start your work as soon as the semester begins
        - Ask for help
        - Take the time to learn more about your online learning space
        - Expect the first week or two of your online class to be an adjustment period
        - Take advantage of the support services and resources
        - **Don't...**
        - Procrastinate
        - Waste too much time
        - Use your electronic correspondence tools improperly
- Testing
- Links

Other Links:

- LMS: WebCT - http://www.bucks.edu/distance/info/guided_tour/index.php
- FAQ: http://www.bucks.edu/online/FAQs.htm
- Quiz: Is distance learning right for me? http://www.bucks.edu/online/dlresources/DL-quiz.html
- Quiz: Technical readiness quiz. http://www.bucks.edu/online/dlresources/Comp-quiz.html
- Quiz: Online etiquette. http://www.bucks.edu/online/dlresources/etiquette.htm

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Rio Salado College Online

http://www.rio.maricopa.edu/distance_learning/

e-Learning information

- What is e-Learning?
  - What is Distance Learning?
  - How do you begin?
  - How do you communicate with your instructor?
  - How do you turn in assignments?
  - Do you have specific due dates for assignments?
  - How do you arrange for your midterm and/or final exam?
- Which e-Learning formats does Rio offer?
  - Internet
  - Mixed Media
  - Print-Based
- Registration checklist

Internet FAQ

http://www.rio.maricopa.edu/distance_learning/information/internet_faq.shtml

- Internet/Equipment Information
- Course Information
- Support Information and Communication

Shoreline Community College

http://www.shoreline.edu/distlearning01index.html

About Distance Learning

- Review the benefits
  - Learn to Learn Tutorial:
    http://www.waol.org/learnToLearn/Module1/mod1_01.htm
  - Self-Assessment Quiz:
    http://www.shoreline.edu/distance/DLselfassessment.htm

Other Links:

- Equipment required: http://shoreline.edu/distlearning09dEquipment.html
- LMS: Blackboard - http://www.shoreline.edu/distlearning18BlackboardInfo.html
- FAQ: http://www.shoreline.edu/distlearning12FAQs1.html

Taft College

http://www.taft.cc.ca.us/newTC/dli/index.html

General Information

- What is distance learning?
- Technical requirements

Getting Started

- How to be a Successful Online Student (44 min. video)
  http://movie.taft.cc.ca.us:8080/ramgen/OnlineStu.rm

Other Links:

- LMS: Etudes - http://www.taft.cc.ca.us/newTC/dli/etudes_logon.htm
- FAQ: http://www.taft.cc.ca.us/newTC/dli/faq.htm
- Quiz: Readiness for distance learning.
  http://www.taft.cc.ca.us/newTC/dli/self_assess.htm
- Quiz: Learning styles inventory.
  http://www.engr.ncsu.edu/learningstyles/ilsweb.html

University of West Florida Online Campus

http://onlinecampus.uwf.edu/index.htm

About UWF

Online Learning FAQs

- Who is learning online?
- What are online courses like?
- How is online learning different?

e-Learning Student Checklist

- Similar to other 'readiness' quizzes.

e-Learning Course Demo

- Nice Captivate(-like?) demo: http://onlinecampus.uwf.edu/About/D2Ldemo.htm

Semester Prep

Academic Preparation

Technical Preparation

- Internet connectivity
- Hardware
- Software

Personal Preparation

- Assessment: http://onlinecampus.uwf.edu/Semester/persPrep.htm
    - Personal information
    - Individual attributes
    - Learning styles
    - Reading comprehension
    - Technical competency
    - Typing speed and accuracy
    - Results
- Technical skills for online learning

- Internet 101 Tutorial
  Columbus Metropolitan Library site - learn the basics of using the mouse and Internet terminology and skills, including advanced searching methods.
- Your Personal Guide to Understanding the Net
  The Ohio State University Libraries site - learn the basics of the web, browsers, e-mail, online discussion groups, evaluating and citing web sites, and searching skills.
- Online Dictionary for Computer and Internet Terms
  Webopedia
- Core Rules of Netiquette
  Guidelines for proper behavior online.

Going to Class

- Tips for online learning Time management
  - Communication
  - Working in online groups
  - Reading
  - Notetaking
  - Assertiveness

Other Links:

- LMS: Argus - https://argus.uwf.edu/cp/home/displaylogin

Appendix C

What metaphors for distance learning might be relevant to Mission College students?

The essence of metaphor is understanding and experiencing one kind of thing in terms of another. George Lakoff and Mark Johnson, *Metaphors We Live By*

- Journey:
    - RPG adventure theme
        - Map of metaphoric land--Academia?
        - Must visit different areas and collect scholarly artifacts.
            - Begin in Computer Lab by assessing computer skills and knowledge.
                - Identify basic components of a computer.
                - Use Captivate simulation to test knowledge of Windows interface.
            - Hit the Study Hall to improve your GPA by identifying good study skills.
            - Survive the Swamp of Procrastination by using Time Management skills.
            - Scale the Peak of Academic Integrity by choosing the ethical route up the mountain.
        - The collected artifacts result in a printable document that summarizes the key points of each area.
    - Spaceship theme
        - Get parts to build a spaceship by passing the computer skills and knowledge assessments.
        - Explore space and survive encounters as described above. Earn more spaceship parts.
- Construction:

    - Myborg theme
        - Build a learning robot by completing various tasks to acquire skills.
            - Offer various styles for each part, so that the final robot is somewhat customized.
        - "Program" your robot's time management by prioritizing study tasks, etc.
        - "Program" your robot's AI by selecting good study skills.
- Exploration:
    - Mystery theme
        - Investigate a student who is suspected of cheating.
            - He was a mediocre student, but now he's getting A's.
        - Uncover his secrets for studying, time management, etc.
    - "CSI" theme
        - A failing student asks you to investigate the "death" of her academic career.
            - Question friends about her study habits.
            - Conduct an "autopsy" on her equipment (computer, VCR, printer, online access, etc.).
            - Analyze the "lab results" of her computer skills.
            - Study her calendar for clues about her time management.
    - "Lost" theme
        - Explore an unknown island.

Appendix D

Scholar's Quest: Game Design Document

Description

Scholar's Quest is a Flash-based, single-player, scrolling adventure game (inspired by Kingdom of Loathing). The student moves the Novice avatar around the screen, navigating obstacles, interacting with characters, collecting scholarly artifacts, and completing tasks assigned by Master Scholar. Along the way the student learns about distance learning, study skills, and time management and progresses through levels from Novice to Scholar.

After a brief orientation to the Academy of Scholars by Master Scholar, the student is directed to visit the Lab of Computing and the Hall of Study, where she learns skills and completes assessments. Skills are visible as meters showing the student's progress. Once the player has completed the assigned tasks, she is free to explore the Academy and interact with non-player characters. Non-player characters usually give her distance learning strategies in the form of scrolls. Once the student has acquired the appropriate number/type of scrolls, she is summoned by Master Scholar. He presents her with a quest which she must complete. This is the basic mechanic for both game play and learning: acquire facts, concepts, and principles and then apply them to solve scenario-based problems.

Instructional modules are presented as quests for the student to complete. An instructional module should utilize a relevant metaphor to maintain student engagement with the game world and should facilitate the use of scrolls as a strategy by the student. For example, a proposed instructional module on procrastination uses a swamp as metaphor. To access this module (quest), the student must first explore the Academy of Scholars and obtain the necessary scrolls. Once she undertakes the quest, the student must navigate her avatar through the swamp, dealing with quick sand, snakes, and alligators that confront her with scenarios related to procrastination. She must select the appropriate scroll (strategy) to deal with the present problem. Incorrect responses negatively impact her skill meters, and too many incorrect responses send her back to the start of the swamp to try again.

Goal

The goal of the game is to teach students the fundamentals of distance learning by presenting facts, concepts, and principles in an engaging way. Furthermore, the students must apply what she has learned to solve problems, overcome obstacles, and progress through the game.

Target Audience

Scholar's Quest is primarily intended for first-time college students who are new to distance learning. However, it is also appropriate for older students.

Pedagogical Approach

Today's youth are different from previous generations in their greater access to computing and communications technologies. Games are a key part of their culture, and gaming has influenced their learning styles and preferences. Games are noted for their ability to engage and motivate players and immerse them in worlds in which they take on new identifies, undertake difficult tasks, acquire new knowledge and skills, and apply their learning to new problems and situations. This is, in fact, the very essence of game play, and these methods are equivalent to instructional strategies derived from contemporary theories of learning, including Gagne's hierarchy of intellectual skills (which suggests scaffolding tasks so that superordinate skills are learned after subordinate skills), Gardner's theory of multiple intelligences (of which games engage many), and emerging thinking on situated learning.

Our intent is to create a digital game-based learning framework based on current theories regarding learner motivation and situated cognition. Garris, Ahlers, and Driskell (2002)[1] identified six dimensions of games that make them engaging and motivating: fantasy, rules/goals, sensory stimuli, challenge, mystery, and control. Our framework will enable instructional designers to develop modules with specific learning objectives and easily integrate them into a larger fantasy role-playing context.

- For information on the technical framework, see the Scholar's Quest: Technical Architecture document.
- For information and help on developing modules, see the Scholar's Quest: Module Development Guide [TBD] .

System Requirements

- A computer with Flash Player 7 or higher.
- Sound card.
- Internet connection.
- Keyboard.

Controls

The student's avatar is controlled using the keyboard.

Hot Keys	**Menu**
ESC	Menu Screen/Quit while at Main Menu
F1	Help

F2	
F3	
F4	
F5	
F6	
F7	
F8	
F9	
F10	
F11	
F12	
Movement Keys	
Up Arrow	Move Up
Down Arrow	Move Down
Left Arrow	Move Left
Right Arrow	Move Right
Space	Jump
Other?	
Object Keys	
Ctrl	
Alt	
Ctrl + Up Arrow	
Shift	
1	
2	
3	
4	
5	

Levels

1. Welcome to the Academy of Scholars

The Master Scholar welcomes the new student and orients her to the Academy of Scholars. He also introduces the interface and navigation controls and offers an optional, more detailed tutorial.

2. Prepare for your quest

The following modules/tasks may be done in any order, but all must be completed to progress to the next modules.

A. Visit the Lab of Computing to learn about hardware and software.

1. Identify the basic components of a computer.
    - Add to Inventory: Laptop.
2. Demonstrate knowledge of Windows interface.
    - Add to Skills: +10 Computing
3. Receive "Scroll of haX0r"

B. Visit the Hall of Study to acquire good study skills.

1. How to use a textbook.
    - Add to Inventory: Books.
    - Add to Skills: +10 Reading.
2. How to take notes.
    - Add to Skills: +10 Writing.
3. How to research and write a paper.
    - Add to Skills: +10 Research, +5 Writing.
4. How to take a test.
    - Add to Skills: +5 Reading, +5 Writing.
5. Receive "Scroll of Scholarship "

3. Graduate from Novice to Junior Scholar.

The Master Scholar reviews what the student has learned and promotes the student to Junior Scholar. The student can now interact with characters around the Academy.

- A student may participate in scripted dialogs and acquire additional skills and items in her inventory.
- A Scholar may reward the student with a scroll which contains a strategy related to studying, time management, etc.
- Scrolls may be used during a quest to avoid obstacles, accomplish tasks, etc.
- Scrolls may be combined into a single document of strategies which may be printed or emailed.

4. Proposed Module: Survive the Swamp of Procrastination

Navigate through the Swamp of Procrastination by successfully managing your time. The swamp is dangerous, but the appropriate scrolls can help you to avoid danger and complete the quest.

- Begin by entering the total number of credit hours being taken.
- As you try to find your way through the swamp, you encounter:
- Quicksand! The student is presented with a scenario related to procrastination and must select the correct scroll (strategy) to deal with the problem. If not successful, -5 Time Management. If successful, the student proceeds to enter her hours per week for work:
    - Commute time.
    - Time at work.
- Snake! The student is presented with a scenario related to procrastination and must select the correct scroll (strategy) to deal with the problem. If not successful, -5 Time Management. If successful, the student proceeds to enter hours per week on family and friends:
    - Time on phone/chat/communications.
    - Dating/meeting friends.
    - Family/child care.
- Alligator! The student is presented with a scenario related to procrastination and must select the correct scroll (strategy) to deal with the problem. If not successful, -5 Time Management. If successful, the student proceeds to enter hours per week on personal care:
    - Sleep.
    - Eating.
    - Exercise, hobbies, television, games, other leisure.
    - Chores/personal business.
    - Spiritual life.
- Once the student has survived the three encounters, she sees how well she's managed her time:
    - If the total hours (t) the student entered plus 2 hours of study for every credit hour (c) is greater than 168 (that is, if t+(2*c) > 168), she has not left enough time for studying; she must return to the swamp and adjusts the times spent in various areas.
    - Once she's optimized her schedule, she can print/email a copy for her use.
    - Add to Inventory: Teleporter? Save time by traveling anywhere in Academia instantly.
    - Add to Skills: +25 Time Management.

5. Graduate from Junior Scholar to Associate Scholar

Graduation from Junior Scholar to Associate Scholar and graduation to subsequent levels should be triggered by student accomplishments.

The Master Scholar reviews what the student has learned and promotes the student to Associate Scholar. New abilities?

6. Proposed Module: Scale the Peak of Academic Integrity

Scale the Peak of Academic Integrity by choosing the ethical route up the mountain.

- Pack your backpack with selected strategies to ...
  - Recognize and avoid plagiarism.
  - Recognize and avoid cheating.
- Ascend the mountain, stopping at rest points along the way.
  - At each rest point you must read a brief scenario and make a decision.
  - Make a correct decision:
    - Add to Skills: +10 Integrity.
    - Ascend to next level.
  - Make an incorrect decision:
    - Slip back to the previous level.
  - Note: Write extra scenarios and randomly select.
- Reach the High Scholar at the peak.
  - etc.

Meters

Name	Use
Reading	
Writing	
Research	
Computing	

Objects

Name	Use
Scrolls	Scrolls contain academic strategies and tips which the student uses at appropriate times.
Scrolls of Accomplishment	
Scroll of HaX0r	Scroll awarded after completing tasks at Hall of Computing. It contains the lessons learned there.
Scroll of Scholarship	Scroll awarded after completing tasks at Hall of Study: Reading, Writing, and Research.
Scrolls of Time Management	

Non-Player Characters

Master Scholar

Professor Lovelace, Hall of Computing

Professor Biblios, Hall of Study

Various other professors, advanced students (to promote the idea of peer learning), etc.

Locations

Academy of Scholars

- Master Scholar's Office
- Hall of Study
- Lab of Computing

Swamp of Procrastination

[1] Garris, R., Ahlers, R., & Driskell, J. E. (2002). Games, motivation, and learning: A research and practice model. *Simulation & Gaming, 33, (4),* 441.

Appendix E

Scholar's Quest: Technical Architecture

Description

We would like the design of the game to be modular so that it may be expanded over time. For a project in another class I experimented with Flash's ability to load multiple movies into the Flash player at different levels, so I decided that approach might work here. The base movie will be the map of the gamespace. As the player explores the gamespace, she will encounter objects (?), people, and locations. An encounter with a person will trigger a dialogue that has a specific learning objective. This encounter will probably be contained within the base movie, although the structure and content of the dialogue may be loaded from an XML file. Entering a location, on the other hand, will load a new movie, the contents of which depend on the purpose of the movie (e.g. to teach the learner about different types of distance learning or the parts of a computer).

Game Engine

The game engine ...

- defines the parameters of the gamespace [done]
- handles the positioning of elements [done]
- controls the player's movement [done]
- tracks the player's attributes (skill levels) and possessions [done]
- handles encounters with non-player characters, which may involve loading dialogue from an XML file
- makes assessment modules available at appropriate times
- loads assessment modules and related metadata from the module's XML file
- handles the communication between the base movie and the active module

Assessment Modules

An assessment module ...

- has one or more learning objectives
- is only available once the learner has acquired the necessary scrolls (knowledge and learning strategies)
- assesses the learner's ability to apply the scrolls appropriately

The XML file for an assessment module may be structured like this:

- module
    - name
    - author

    - date_created
    - description
    - learning objective(s)
        - name
        - description
        - LMS ID
    - required_scroll(s)
        - name
        - text
        - type
        - bearer

Example [unfinished]:

- module
    - time_management
    - Rod Myers
    - 2 June 2006
    - This module assesses the learner's ability to apply time management strategies to avoid problems.
    - learning_objective
        - etc.

Interactive Dialogues