

1. Objectives

This semester, IPRO 329: Edutainment has a new focus to complete our goals. In past semesters, we have focused on matching materials taught in the classroom and then surpassing them using the Vermont Standards of Education. Our focus, this semester will be on completing the suite of games in order to have a complete product by the end of the semester. By achieving this, it will be a supplemental software that can be used outside the classroom to promote better math and science learning. The tentative title, *Scholars of the Lost Exhibit*, remains the same this semester. We are confident that we will achieve a finished product that will both feel and look like an entertaining software piece, but also provide children with resources and education.

There are multiple objectives and goals the team has set forth this semester:

- Continue to complete the high-level architecture of the development portions of Phase II for the museum
- Design, develop, and user test three new games
- Have all IPRO deliverables three-fourths complete by mid semester, excluding the Project Plan and the Midterm Report, which will be completed before their deadlines
- Re-design and develop a new look-and-feel for the museum environment
- Design and develop a beginning and an ending storyboard for the game
- Conduct status reports every week in order to keep track of work that is in progress
- Construct a working final version of *Scholars of the Lost Exhibit* for IPRO Day and for STC Chicago Competition
- Revamp marketing materials for Phase III

The development and completion of *Scholars of the Lost Exhibit* education gaming suite is the main objective for this semester, but the team can only reach this objective through integrated participation and collaborative learning. To create this educational experience, every person must remember the importance of the overall team experience besides the objectives of the project. Finally, all team members must embody the idea of IPRO and learn to work with others that are different from one another.

2. Background

These past four semesters, IPRO 329 has turned its focus and efforts to the need for educational games that serve as supplements for classroom subjects and their trouble areas. Often, students do not completely grasp certain focus areas within specific subjects. Because of this, IPRO 329 decided to develop a game called *Scholar of the Lost Exhibit*. In order to solve this problem, the team will use iterative design and development methods to further develop *Scholars of the Lost Exhibit*. Furthermore, the development team will continue to use Adobe Flash 8 and Action Script 2.0 to program the game this semester.

This particular IPRO had been very successful in past semesters. For example, the team from Fall 2004 won an award from the Society of Technical Communications (STC) for their completion of *College Pursuit*, a computer game developed to teach high school students about college financial aid. Furthermore, this IPRO also received recognition for its first game, *CreditSafe*, which was published on the Illinois Secretary of State's web site. In addition, this game garnered an award from the same STC competition. In recent semesters, the games have been brought to local grammar schools and have been very popular with the children and teachers. As with previous computer games that were created, *Scholars of the Lost Exhibit* will be entered into the STC competition this semester after completion of all objectives that are set forth this semester.

Overall, IPRO 329 holds high standards and follows a strict process in order to achieve successful and award-winning results.

3. Methodology

There are a number of approaches to software development, each of which has a set of advantages and disadvantages associated with it. For our projects, we have chosen an approach that we call the **Pipeline** process model and the **Iterative Prototyping** process model. Both of which are similar to process models used in the business environment.

When using the *Pipeline Model*, the team follows three phases, each of which has particular tasks associated with them. The team can keep track of which level of development the problem is at and determine a plan of completion in an organized manner. Furthermore, these phases provide a sturdy basic structure for problem solving because the phases allow time for research, development, testing, and marketing. Within this model, the developers use the *Prototyping Model*. While using the *Prototyping Model*, the developers build a simplified version of the proposed system and present it to potential users for consideration as part of the development process. The users, in turn provide feedback to the designers and developers, who go back to refine the system to incorporate the additional information.

The **Pipeline Model** consists of the following phases:

- **Phase I** - Create, analyze, research, and select game ideas based on successful gaming criteria
- **Phase II** - Using aforementioned iterative methods, the game is brought from preliminary design to final development and then to user testing.

- **Phase III** - Through various outlets, the game is introduced to the public and any legal issues are resolved

This is the third semester of implementation of this model, and it has undoubtedly proven to be instrumental to IPRO 329's success. As IPRO 329 continues to grow in size and complexity, this model provides one great advantage:

- Team members have a way to stay organized and know where each group (Development, Design/User Testing, and Management) is with the research, design, development, testing, and marketing of the project.

The ***Pipeline Model*** allows for even development and proper implementation of the *Prototyping Model*.

The ***Prototyping Model*** consists of the following looping steps:

- **Requirements Definition/Collection.** The information collected is usually limited to a subset of the complete system requirements.
- **Design.** Once the initial layer of requirements information is collected, or new information is gathered, it is rapidly integrated into a new or existing design so that it may be folded into the prototype.
- **Prototype Creation/Modification.** The information from the design is rapidly rolled into a prototype. This may mean the creation/modification of paper information, new coding, or modifications to existing coding.
- **User Testing.** The prototype is presented to possible users for review. Comments and suggestions are collected from the users and reported back to the team.
- **Prototype Refinement.** Information collected from the customer is digested and the prototype is refined. The developer revises the prototype to make it more effective and efficient.

- **System Implementation.** In the traditional model, the system is rewritten once requirements are understood. In the *Iterative Prototyping* process, the results of the tests are used to guide the changes to the system. As some parts or phases of the software are implemented, other parts are prototyped and tested.

The process model we use has proven successful to the needs of similar past projects of ours. There is one major benefit of this approach:

- Creation of the major user interfaces without any substantive coding in the background gives the users a “feel” for what the system will look like and uses their feedback to refine the system at a very early stage.

The iterative nature of development allows for parallel progress of several tasks – different system features are being designed, tested and implemented at the same time. This process both improves productivity and reduces the time needed.

4. Expected Results

The IPRO's most important result is that we achieve our goal of “Educating while entertaining”. In addition to that goal, each sub-team has developed a specific task-related set of goals for this semester in order to ensure product achievement. If each group follows the aforementioned procedures, these goals should have results within these next thirteen weeks. This subdividing of the team was implemented a couple semesters ago, and it proved to be as crucial to IPRO 329's success as our methodology.

Team 1 - Development

This team is responsible for programming the game. With this in mind, it is necessary for the entire team to learn Flash 8 and Action Script 2.0 before any other work is done. After this is complete, the development team has a handful of tasks to complete before the game is ready for its final release. The Development team is planning to create three new games: one math game, one science game, and a “super” game that will incorporate both math and science. Next, the team plans to create a beginning and ending animation sequences for the game. In addition, the museum and characters will be revamped and updated. Finally, the team plans to fix any problems that are noticed within the games or environment during user testing.

Team 2. Design/User Testing

The Design and User Testing team is responsible for the overall look, feel, and playability of the games. The design team will be continuing to develop games for the Development team to implement into a game. They have set a few new tasks for themselves this semester so that the final pieces of the game can be put together. The previous version of the game lacked attraction and the characters within the museum were rather rigid. With the addition of more game selections within the museum, it became increasingly difficult to add more functions and detail into the museum environment. With the help of the Development team, the new museum environment was put into construction. The museum began to feature more depth and detail. Characters were animated using 3D Studio Max to provide more realism and RPG feel. The decision to design three additional mini games required new graphics in order to create a more attractive feel to their mini games. To allow the developers to focus on their mini game construction, the developers created a list of the graphics that they needed and then handed them to the design team. In addition to the difficulties with attractiveness, the previous versions featured too much text that 4th graders had a hard time understanding and remembering. This problem was further highlighted from last semester’s IPRO Testing. The Design team plans to cut down the text clutter and perhaps add some voice-overs when characters

engage in a conversation. The game also lacks background music, sound effects, intro and ending sequences. Using a sound editor, the design team will create new background music and sound effects for various areas within the museum environment and mini games. Furthermore, the team brainstormed and came up with an intro and ending sequence to the game. Using animation rather than text, we hope to create beginning and ending sequences that will captivate the 4th graders.

Team 4. Management

The management team is in place to solve the problems of constructing and submitting deliverables, which they excelled at last semester. The management team is responsible for making sure that everything is running well and on time. In order to do that, the management team has various tools from email to calling people. This semester, the management team is taking it a step further. IPRO 329 will be run more like a business than a classroom. In addition, we are adding a few new tasks for the management team. Instead of peer evaluations, status reports will be conducted. By creating status reports, the management team can reflect on the progress in every area and aspect of the project. This way, if any problems do arise, the management team can better manage resources that are available at their disposal. In addition, management has to keep everything on track in order to succeed in the development and design of the final version of the game and get it ready for the STC competition this year.

Overall IPRO

For IPRO Day, the entire IPRO would like to have a complete interactive demo for judges and others to play. In addition, the entire team would like to present the two models/processes used for game development and explain how these two models/processes provide the necessary layout for game planning and progress. Furthermore, the entire IPRO would like to see their developing product marketed through handouts, CDs, business cards, and pamphlets. In order to support their product, the team expects all of its members to know the

problem at hand as well as research used to solve the problem. Lastly, we hope to gain more attention from related companies through IPRO day and our special presentation.

5. Budget

Included below is the itemized budget for the project.

IPRO 329	EXPENSES
Free-Hand Drawing Table	\$199 - \$299
100-Pack of CDs	\$35
Laser Printing on CDs	
Final Package Printing	
T-Shirts @ \$20.00 (20 total)	\$200
5 copies of Final Report @ \$4	\$20
2 Final Posters	\$200
GRAND TOTAL	

6. Project Deliverables and Milestones

Design Team

Work Breakdown Structure

Please see attached file DesignWBS.vsd or DesignWBS.jpeg

Individual Project Plan

Please see attached file DesignProjectPlan.mpp

Development Team

Work Breakdown Structure

Please see attached file DevelopmentWBS.vsd or
DevelopmentWBS.jpeg

Individual Project Plan

Please see attached file DevelopmentProjectPlan.mpp

Management Team

Work Breakdown Structure

Please see attached file ManagementWBS.vsd or
ManagementWBS.jpeg

Individual Project Plan

Please see attached file ManagementProjectPlan.mpp

7. Individual Team Member Assignments

Last Name	First Name	Team	Major	Responsibilities
Abdi	Shabihul	Development	CS	Dungeon End-Game
Branicki	Konrad	Management Team Leader	CS	Project Plan, Midterm Report, Poster, Abstract, Presentation, Final Report, Bi-weekly Reports, Status Reports, Team CD
Ephraim	Matthew	Development	IARC	Graduate Consultation For Development of all Games
Kimmach	Deborah	IPRO Leader / Development Team Leader	ITM	Project Management, Agenda, Meeting Minutes, Status Reports, Etc.

Lloyd	Joseph	Development	CS	Dungeon End-Game
Loh	Almond	Design Team Leader	IARC	Graduate Consultation For Design of all Games, Design Development, Design Team Work Allocation, Certificate, Logo Design, Presentation, Poster, T-shirt Design
Merkley	Michael	Development	BME	Water Cycle Game
Slone	Michael	Development	CS	Fish Game, Rework of Planet Game
Tan	Yun	Development	CPE	Museum Environment, Characters, Website, Mini-Game Integration, Beginning&Ending Sequences
Olson	Kurt	Design	CS	Design Development, Audio, Storyboard, Certificate, Presentation, Poster, T-shirt Design
Pierce	James	Design	Psy	Audio, Usability Testing, Mini game Questions, Presentation, Poster, T-shirt Design
Olsen	Keith	Design	Math	Mini games (Water Cycle)

8. Designation of Roles

Meeting Roles

- **Minute Taker**
 - Deborah
- **Agenda Maker**
 - Deborah, Almond, Matt, Konrad
- **Time Keeper**
 - Deborah, Konrad

Status Roles

- **Weekly Timesheet Collector/Summarizer**
 - Deborah, Almond, Konrad
- **Master Schedule Maker**
 - Deborah