

1. Objectives

This semester IPRO 329, Edutainment, turns its complete efforts toward an educational computer gaming suite targeted at fourth-grade students and the subjects these students struggle with most in school. It is tentatively entitled *Scholars of the Lost Exhibit*. Work on this project began last semester as the team completed their award-winning game *College Pursuit*. During this semester, we will focus on the design, development, testing, and marketing of *Scholars of the Lost Exhibit*.

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

- Complete the high-level architecture of the development portion of Phase II
- Research the user experience for all other subject wings: Social Science, Mathematics, and Language Arts
- Have all IPRO deliverables three-fourths complete by mid semester, except Project Plan and Midterm Report, which will be completed before this deadline
- Create paper prototypes of the first portion of the Museum Lobby and Science wing
- Conduct peer evaluations each month
- Construct a prototype of the Science wing for IPRO day
- User test the Museum Lobby and the Science wing
- Produce marketing materials for Phase III

The development 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.

2. Background

These past two semesters, IPRO 329 turned its focus and efforts to the need for educational games that serve as supplements for classroom subjects and their trouble areas. Often times, students do not completely grasp certain focus areas within certain subjects. Hence, we plan to address this problem with the development of *Scholars of the Lost Exhibit*. In order to solve this problem, the team will use iterative design and development methods. Furthermore, the development team will use Flash and Action Script 2.0 to program the game.

This particular IPRO had been very successful during its past semesters. Just recently, 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 grew successful after its first game *CreditSafe* was published on the Illinois

Secretary of State's web site. In addition, this game garnered an award from the same STC competition. 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.

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 great basic structure for problem solving because the phases make time for research, development, testing, and marketing. Within this model, the developers use the *Prototyping Model*. While using the *Prototyping Model*, the developers will 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

Although this is only the second semester of implementation of this model, it has already proven to be imperative to IPRO 329's success. As IPRO 329 continues to grow in size, this model provides one great advantage:

- Team members have a way to stay organized and know where each group (Development, Design, User Experience, 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.

4. Expected Results

Not only does the entire IPRO have certain expected results, but each sub-team has set their own goals which they hope to attain by the end of the semester to ensure product achievement. If each group follows the aforementioned procedures, these goals should have results within these next thirteen weeks.

Team 1. Development

This team is responsible for programming the game. With this in mind, they strive to have a prototype of the museum lobby, where students can walk around and interact with people and objects; also, the Science wing should be complete. They would also like to have dialogue complete so that the game may be interactive with the student user even in the early demo. Once these are both complete, a demo of the game can run on IPRO Day. Furthermore, they plan to have the game's architecture complete by the end of the semester.

Team 2. Design

Responsible for the overall look, feel, and playability, the design team strives to turn out flow charts and mock-up screen shots of at least two additional wings by the end of the semester. Along with these, the team plans to have the user interface complete for the museum lobby and Science wing. The interface currently involves script for student interaction and music as well as the development of characters and

other art that is expected to appear in the final game. The design team is expected to progress greatly by semester's end.

Team 3. User Experience

The user experience team is responsible for developing gaming solutions based on the student's needs as well as their likes and dislikes. They must conduct research, interviews, and observations to gather information required to make this game as effective for the target audience as possible. They provide the groundwork on which the game develops. Hence, they plan to gather feedback from testing, student and teacher interviews, provide a template for research, and provide video interviews to show on IPRO Day.

Team 4. Management

After disorganization last semester and failure to meet group deadlines, the management team is now in place to solve those problems and many more. Not only are they responsible for ensuring deadlines are met and everyone is contributing to the project, but also they must document every bit of progress made by the rest of the teams as well as the entire IPRO. Their duties include completing all IPRO Deliverables; printing, organizing, and filling all documents; determining a standard way to name documents; constructing peer evaluation forms; recording progress through minutes and reports; interviewing the other teams to make sure they are making progress in the right direction; and marketing the IPRO. Essentially, the management group serves as a liaison between all groups.

Overall IPRO

For IPRO Day, the entire IPRO would like to have an interactive demo complete 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. Lastly, 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.

5. Budget

Included below is the itemized budget for the project:

Design Team	Expenses
3 like-ggenre games for research @ \$20 each	60
2 boxes of transparencies / sheet protectors for paper-prototype testing @ \$7 each	14
2 boxes of binders at \$3 each	6
Adobe Creative Suite	1,229
Usability testing compensation	200
1 tower of CDs @ \$20	20
Subtotal	1529
Management Team	Expenses
5 copies of Final Report @ \$4	20
50 brochures @ \$2	100

Comment [SF1]: Let's work on budget next week.

Business Cards @ \$60.00	60
50 buttons @ \$70.00	70
Subtotal	250

Development Team	Expenses
Pen Tablet	200
Flash Tutorial Video CDs and Software	300
Blank CD Media	50
Subtotal	550

User Experience Team	Expenses
Game software	100
Video tapes	60
Incentives	200
Travel	100
Subtotal	460

IPRO Team	Expenses
2 Final posters	200
Subtotal	300

GRAND TOTAL 3089

The success of our project is strongly dependent on the availability of these resources.

6. Project Deliverables and Milestones

Project Deliverable	Due Date	Teams
User Manual	draft: TBA final: TBA	User Experience, Management
Product Rollout Plan	draft: March 10 final: April 20	Management
Usability Testing Scholars of the Lost Exhibit	TBA	User Experience
Completed Museum Lobby / Science Wing	April 20	Design, Development
First Demo Version of Elementary Level Gamine Suite	April 25	Development
User Testing report Elementary Level Gaming Suite	April 20	User Experience
Development Documentation	TBA	Development

IPRO Deliverable	Due Date	Teams
Project Plan & Budget	Feb 4 – Week 3	All
Mid-term Report	Mar 24 – Week 8	All

Website	draft: Feb 15 – Mar 29 – Week 5 – Week 11	Design, Management
Presentation	final: Apr 19 – Week 14 draft: Mar 22 – Week 10 final: Apr 21 – Week 14	Management, All
Poster	draft: Mar 22 – Week 10 final: Apr 25 – Week 15	Design
Abstract	draft: Mar 22 – Week 10 final: Apr 25 – Week 14	Management
Final Report	draft: Mar 22 – Week 10 final: May 6 – Week 16	All
Team CD	May 6 – Week 17	Management

7. Weekly Assignments

Week	Tasks and Deliverables
Jan 17 – Week 1	Meet with team and review last semester <ul style="list-style-type: none"> ➤ Begin project plan
Jan 24 – Week 2	All <ul style="list-style-type: none"> ➤ Discussed goals for entire IPRO as well as each individual group Development <ul style="list-style-type: none"> ➤ Get acquainted with software ➤ Brainstorm prototypes Management <ul style="list-style-type: none"> ➤ Determine file naming system ➤ Set deadlines for deliverables ➤ Start brainstorming peer reviews ➤ Delegation of tasks
Jan 31 – Week 3	Development <ul style="list-style-type: none"> ➤ Divide tasks into teams ➤ Come up with prototypes and proof of concepts Design <ul style="list-style-type: none"> ➤ Develop characters to fit plot Management <ul style="list-style-type: none"> ➤ Modified Peer Reviews ➤ Discussed shirt and button costs ➤ Final edits on Project Plan and budgets User Experience <ul style="list-style-type: none"> ➤ Discussed meeting with Professor Letterman ➤ Going to see Letterman

- Feb 7 - Week 4
- Development
 - Evaluate progress
 - Design
 - Develop characters to fit plot
 - Management
 - File weekly reports and minutes
 - User Experience
 - TBD
- Feb 14 – Week 5
- Development
 - Start on high level design
 - Design
 - Finalize main characters
 - Develop children’s character choices
 - Management
 - **Update Website**
 - Product Rollout Plan – upload to server
 - User Experience
 - TBD
- Feb 21 – Week 6
- Development
 - High level design
 - Design
 - Finalize plot
 - Management
 - New Content – continue work
 - Product Rollout Plan – submit to competition
 - Collect any papers for filing
 - User Experience
 - TBD
- Feb 28 – Week 7
- Development
 - Break high level design up into tasks and teams
 - Design
 - Continue working on plot
 - Paper prototypes
 - Management
 - **Update Website**
 - User Experience
 - TBD

- Mar 7 – Week 8
- Development
 - Break high level design up into tasks and teams
 - Design
 - Paper prototypes
 - Management
 - New Content – continue work
 - Midterm Report draft ¾ complete
 - User Experience
 - TBD
 - Other
 - Peer evaluations online this week

Mar 14 – Week 9 **SPRING BREAK**

- Development
 - Break high level design up into tasks and teams / continue coding
- Design
 - TBD
- Management
 - Marketing materials – begin work on brochure, etc.
 - **Update Website**
 - Work on all deliverables
- User Experience
 - Video interviews completed

- Mar 21 – Week 10
- Development
 - Integration testing, if good package demo
 - Design
 - TBD
 - Management
 - Finalize IPRO deliverable drafts
 - Finalize brochure
 - Order buttons
 -
 - Other
 - **Midterm Report Due – March 24**

- Mar 28 – Week 11
- Development
 - Start next build
 - Start thinking about how and what to put into a video montage of the game
 - Design
 - TBD
 - Management
 - Get business cards and brochures printed
 - Update Website
 - Collect any paper for filing
 - Other
 - Practice presentations
- Apr 4 – Week 12
- Development
 - Same as week 11
 - Design
 - TBD
 - Management
 - Continue working on I PRO Day deliverables
 - Other
 - Peer evaluations online this week
- Apr 11 – Week 13
- Development
 - **Final semester build of game**
 - Create video montage
 - Design
 - TBD
 - Management
 - **Finalize Website**
 - Work on poster

- Apr 18 – Week 14
- Development
 - Same as week 13
 - Design
 - TBD
 - Management
 - Proof Final Report / Abstract / Power Point Presentation
 - Finalize CD
 - User Experience
 - Video interview completed (editing, processing done)
 - Other
 - **Website Due April 22**

I PRO DAY – April 29

- Apr 25 - Week 15
- Other
 - **Website Due April 22**
 - **Exhibit / Poster / Abstract Due April 25**
 - **Power Point Presentation Due April 27**

- May 2 – Week 16
- I PRO Debriefing**
- Management
 - Collect any papers for filing
 - Other
 - Peer evaluations online
 - **Final Report / Team Information / Team CD Due May 6**

- May 9 – Week 17
- I PRO Debriefing