

Martha Holden Jennings Foundation Grant Proposal for Gamification

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Purpose of the Grant

Stark State College seeks a grant for gamification of the Game Design course in the Computer Science Division. The purpose of this project is to create a course that engages students to learn the course level objectives through a series of interactive games and assignments. This project will include development of the instructional materials, training of the Course Coordinator who will be charged with keeping the newly designed course updated, two semesters of students taking the newly developed course, assessment of students grades and a survey of faculty and students to see what they thought about taking a course that is developed using gamification.

Current Educational Environment

The Game Design course is currently being offered at Stark State College. It's the introduction course that is required for all Video Game Design and Development majors. Two sections of this course is offered each Fall and Spring semester. The sections have a maximum enrollment of 24 students per section. It's critical that these first year students have a clear understanding of the principles of game design as they use this knowledge throughout their degree.

This course is delivered in two formats. The most popular format is Web 3, which is fully online. All materials, instruction and assignments are located in the Learning Management System. It is also offered as a Web 2 course. In this format, students attend class one day each week for the class lecture, they complete homework outside of class and submit it online. In order for a student to take a course in either of these formats, they must pass a Succeeding Online Orientation which teaches them how to navigate our learning management system and how to prepare for an online student. Since these are Computer Science students, they are usually very tech savvy and used to navigating online.

Stark State College uses the Blackboard Learning Management System as our method of course delivery. When a student registers, they are placed in the online class shell. Each Instructor assigned to teach this class copies the approved master course. The Instructor has the option to add additional materials to the class but must use the materials and assignments that have been developed by the Course Coordinator. This is done to ensure all courses are delivered in a similar format and students are meeting the General Learning Outcomes (GLOs) set by Stark State College. The GLOs for this course are effective communication, quantitative literacy, information literacy and critical thinking. It's expected that all course content and assessments will help students meet achieve goals.

GLOs are a focus at Stark State College. Each semester, several courses are selected to go through the GLO review process. Grades for students are compared and assignments are revised if the pass rate for the assignment is under 70%. This process helps evaluate assignments and ensure students are meeting the required goals. The Game Design course has not been evaluated recently for the GLO process. As part of this grant proposal, student's grades were reviewed using the GLO process. Students are doing well on writing labs but not on reading quizzes. For the classes that were evaluated, the reading quiz results were under the acceptable 70% pass rate. This is a concern, by grades being low on these assignments it can be assumed that students are not meeting the effective communication or information literacy learning outcomes. The gamification approach will promote active student learning and help ensure they are meeting these outcomes.

The current Game Design course was created using the Stark State College template. This template is designed to meet the Quality Matters Rubric. Navigation of the course is easy for students to understand and there are specific directions listed for what the student needs to do each week. Each week contains a materials folder with a publisher PowerPoints and various industry videos. There is also an assignment folder that contains the assignments for that week.

Assignments include a reading quiz, a lab that involves writing about an aspect from the lesson and several weeks have discussions. From a design perspective, the current course meets the requirements of Quality Matters. From a learning perspective, the current course needs improvement to ensure the content and assessments are actively engaging learners.

Limitations

The current design of the course has limitations including issues meeting the students various learning styles and outdated content. One of the current goals of eStarkState is ensuring our courses meet the principals of Universal Design for Learning. This “is a learning approach that designs curricular materials, activities and instruction with the flexibility to meet individual learners’ strengths and needs so all students can have access to what is being learned in the class” (Smith, et al, 2017, p. 2). The advantage of designing a course in the manner is it will work for all learning styles and accommodate those with disabilities.

The course was designed using the format that students would read assigned chapters from the textbook, review the publisher PowerPoint and watch the videos that are primarily interviews with the author and then complete the reading quiz and weekly lab. While this concept works well for reading/writing learners it’s not ideal for kinesthetic learners, visual learners or auditory learners. These learners require engaging materials that allow them to listen, see and interact with course content. By creating interactive lectures that use gamification principles all students learning needs would be addressed and we would meet the goal of ensuring this class meets the Universal Design for Learning principles (Nakano, 2016).

The interactive lectures will enrich the students learning experience but do have some limitations. Since the lectures will be delivered in an interactive format, the Course Coordinator will need to have access to Articulate Storyline and must be trained to use it for updating the course content. He will also need to be trained on using the Advanced Adaptive Release settings,

uploading SCORM packages and creating Achievements in Blackboard. The Course Coordinator is familiar with the basics of Blackboard and tech savvy which will be helpful during training. The Instructional Technologist will conduct this training. She has over several years of experience using Articulate Storyline and has taught the Game Design course multiple times so she can assist when the Course Coordinator needs to make updates. The design files would be stored on a shared network drive to ensure that both people have access to make any needed updates. Since there are typically only two sessions running each semester it will be easy to update the files and reload into the courses as needed. During this process, the Master course will also be updated to ensure consistency.

The content of this was developed over seven years ago. The book that was originally selected, *Fundamentals of Game Design 3rd Edition*, is still being used in the course. While the book was a great resource when the course was developed, it's out-of-date for today's standards. The game design industry continues to evolve. The gaming platforms and technology mentioned in the textbook has become obsolete. In the last five years, new consoles have been launched and the purchase format of games has changed from physically purchasing a cd with the game loaded on it to purchasing it online and downloading to the user's device. There is also a section in the book about the demographics of the player that is no longer correct. When the book was published, the focus. According to the Entertainment Software Association's 2018 report titled *Essential Facts About the Computer and Video Game Industry*, 45% of gamers are female. Since these students will go on to design games, it's critical they presented what is currently happening in the gaming industry.

Need

This course needs to be redesigned to engage all learning styles and to have updated course materials. This will not be a simple task as the Department Chair and Course Coordinator have decided that open source materials will be used in redeveloping the course. Since the

industry is constantly changing, it's not realistic to use a specific textbook. While this benefits students financially, it adds a level of complexity as materials have to be located and integrated into the interactive lectures and assessments. The Course Level Objectives will remain the same so the goal is to ensure that the materials used meet these objectives.

Due to time constraints of the Course Coordinator, the Instructional Technologist will take the lead role in gathering open source materials, creating interactive lectures and ensuring that the assignments align with the learning objectives. She has had extensive experience in creating courses that focus around the principles of Universal Design for Learning and understands how to create content and assignments that meet the needs of the various learning styles. During this redevelopment, the Course Level Objectives will be added to each assignment so students understand why they are completing that particular assignment. This will also make it easier for the Course Coordinator to complete the GLO reporting that was mentioned above.

Goals of Proposal

This proposal has multiple goals including instructional, technological and training goals. The instructional goals will focus on ensuring content is up-to-date and the various learning styles are being met. The technological goals will be to ensure the students understand how the course works and that the Course Coordinator has access to the needed software. The training goals will focus on ensuring the Course Coordinator understands how to use Articulate Storyline and the advanced features of Blackboard. Each of these goals require more clarification which is stated below.

The instructional goals would be to create a course with updated materials that meets the various learning styles of the students at Stark State College. In the past three years, the College has seen a shift in learning styles. Visual and auditory learners are the most common types of students in the Computer Science degrees. While the videos that have been used in the course


are helpful, the interactive lectures will offer the students more explanation and allow them the chance to listen to the content rather than have to read all of it. This method of delivery was tested with the Fall 2018 Game Design students for one assignment and feedback was very positive. Here are a few comments that students made when surveyed about the interactive lecture test. Student 1 stated, "I would prefer to have the interactive lectures with the questions throughout. For me, it helps to have the audio while I follow along. It allows me to be more engaged. Having the questions throughout is better for me because if the chapter is long I might not remember a small detail from early on or if I don't read and take the quiz in the same night it could be harder to remember" and Student 2 stated, "I would prefer to have interactive lectures with questions throughout them. These seem much easier to follow and understand". The feedback from all eight students in the course was very similar. All of them preferred the interactive lecture to reading and taking a quiz. The average grade on this assignment was an 80% which indicates students were more successful on it than the typical reading quiz which contained the same types of questions.

The technological goals will be broken up into two parts, the first focuses on the student's needs. No new technology will be required from students but they will need to understand how to navigate the course and how to work the interactive lectures. While the course will follow the same layout as a traditional course, it will be themed like a video game. Therefore, it's important the student understands where to start and what is expected of them. Announcements and videos will be used to explain what they must do to get started, how to navigate the course and how to complete the interactive lectures. This meets Quality Matters Standard 1.1 which states "Instructions make it clear how to get started and where to find various components". Below is an example of an announcement that has been designed to assist students in understanding where to start. This announcement includes an audio file for auditory learners. The goal is to ensure the students understand how to use Blackboard, navigate the course and complete all interactive

assignments and labs.

Welcome

Posted on: Friday, November 2, 2018 11:05:30 AM EDT




Welcome to class, we will be playing a “game” throughout this semester.

Our Mission: Allen the alien has crashed his ship! He accidentally flew out of his video game. Our mission is to help Allen get back to his game. Along the way, you will learn the aspects of game design that you will need to help Allen achieve his mission.

This game will last 16 weeks. Each level will take you several weeks to complete. Allen will introduce you to multiple challenges (assignments) that must be completed by the dates listed in the course syllabus. If you do not complete these challenges you will not be prepared to move onto the next level in the game.

Let's get started! To start this game, you will want to make sure you review all the materials listed on the Start Here link.



[Course Link/Start Here!](#)

The second technological goal focuses on the Course Coordinator. He will need access to Articulate Storyline. Currently, there are only two copies of this software owned by the college. They are loaded on computers that are in constant use by members of the eStarkState online learning team. It's not realistic for the Course Coordinator to update files on these computers. The plan would be to purchase an additional copy of Articulate Storyline and load it on a computer in the Resource Lab that eStarkState maintains. This would allow the Course Coordinator to have access to the software whenever needed. Since Course Coordinators change frequently, this ensures that any future Coordinator would also have access to the software without the requirement of purchasing an additional copy. This will keep the cost of software minimal and allow the sustainability of the course.

The training goal focuses on ensuring the Course Coordinator is trained on updating the interactive lectures, creating new lectures if needed and the advanced features of Blackboard. This training will be conducted by the Instructional Designer who is responsible for technology training. Training will consist of one-on-one training sessions on Articulate Storyline. The interactive lectures will be developed using a simple template and standard question types which will make them easy to update. This software is very similar to PowerPoint which is used commonly by Course Coordinators. This training will be recorded so there is a video for reference if needed. Since there are some advanced Blackboard settings that will be used in the gamification

process, the Instructional Designer will also be responsible for training the Course Coordinator on using these settings. The advantage is many of these settings are used in other ways and the Course Coordinator will be familiar with the functions they serve. Printable tutorials and videos will be supplied for each Blackboard setting. To ensure the training is sustainable, a file that contains all these resources will be developed and placed on the Computer Science network file. This will allow future Coordinators access to these resources.

Technology Proposal

The technology required for gamification of this course is minimal. eStarkState already has a dedicated space with computers for Faculty use so no hardware needs to be purchased. Blackboard offers many tools that will be used which is beneficial since the Course Coordinator knows how this system works. The only required software purchase would be Articulate Storyline which will be used to create the interactive lectures.

Articulate Storyline was chosen for several reasons. The Instructional Technologist did a review of interactive presentation software. Articulate Storyline, SoftChalk and Adobe Captivate trials were all downloaded and the software was tested for ease of use, accessibility and integration with Blackboard. It was determined that Articulate was the easiest to use. It also offered better audio recording, interactive quiz questions and accessibility options. This software also offers seamless integration into Blackboard and students quiz scores are automatically loaded into the Grade Center. Overall, it's an ideal choice for this project.

Articulate Storyline has been used to create interactive lectures and assignments in various classes at Stark State College. One mentionable class is Student Success which is part of the first semester experience. Students complete nine assignments in this course that were created using Articulate Storyline. Since it has been implemented in Student Success, the grades of assignments have improved. In the three years it's been used, there have been very little issues

with students having a difficult time understanding how to use the software. Videos have been created to explain how to navigate it and how to complete the assignments. Similar videos will be created for this course to ensure students are comfortable with the software.

Personal Qualifications

This grant is being submitted by Jessica Aubley who is the Instructional Technologist for Stark State College. She has worked with multiple faculty members to create interactive course materials and authentic assessments. The results of these projects have been very positive, in the Introduction to Ethics course student's grades have significantly improved on tests and Ethical Dilemma papers. She is also a Quality Matters Preer Reviewer so she understands the aspects of what need to be required in course development.

Jessica is an ideal person to oversee this project as she has been teaching as an Adjunct Instructor in the Computer Science Department for eleven years. She has been involved in the redevelopment of multiple courses in Computer Science including HTML Coding, Advanced Web Design and Introduction to Mobile Design. Each of these projects have included applying the Principles of Universal Design for Learning. Student satisfaction and grades have increased in these courses. She has taught the Video Game Design course in Spring and Fall of 2018. She has had the opportunity to have both traditional students and College Credit Plus students in these classes. During these semesters, she has worked with many students who struggle to read the book and apply what they have learned to the assignments. This has allowed her insight to the improvements that need made to this course.

Before joining Stark State College fulltime, she was involved in the development of a mobile game for her previous company. She has also attended a technology summit where Gamification was presented and met with Instructional Designers from Tri-C College to learn more about the

approach and successes they are having with gamification. Her experiences and what she has learned from Tri-C have allowed her to develop the approach that is listed in this grant.

Timeline of Implementation

The timeline below includes development, training and evaluation of the gamified course.

The Department Chair has set a goal that the new course must be ready for Fall Semester of 2019 so the development timeline is critical.

Schedule of Activity – January 2019 – May 2020

January 2019 – April 2019: <i>Development of the course.</i>	<ul style="list-style-type: none"> • Course Coordinator and Instructional Technologist to meet to determine learning objectives and subjects for each Module of the course. • Open Source materials to be selected. • Interactive lectures to be created and functionality tested. • Course to be developed using the approved template. • Instructional videos for students to be created.
May 2019: <i>Course review & corrections.</i>	<ul style="list-style-type: none"> • Course Coordinator to review content of the course and advise any needed corrections. • Corrections to be made by the Instructional Technologist. • Course Coordinator will conduct a final review of content.
June 2019: <i>QM review & corrections.</i>	<ul style="list-style-type: none"> • Course Coordinator will request a Quality Matters internal review. • Quality Matters internal review will be conducted by the Instructional Designer and any needed changes will be made by the Course Coordinator. • Instructional Designer will approval all changes and alert the Department Chair that the developed course meets Quality Matters standards.
July 2019: <i>Software loaded & training.</i>	<ul style="list-style-type: none"> • Articulate Storyline software will be purchased and loaded in the Resource Lab that eStarkState maintains. • The Course Coordinator will have weekly sessions with the Instructional Technologist on how to use Articulate Storyline and the advanced features of Blackboard. These sessions will happen throughout the month or until the Course Coordinator is comfortable with updating the content. • The Instructional Technologist will develop the folder with reference materials.
August 2019: <i>Instructor introduction, course copy and launch!!</i>	<ul style="list-style-type: none"> • The Course Coordinator will meet with those scheduled to teach the course and walk them through the changes. There is no technology training required for the Faculty, they just need to be aware of how the course will run. • The Course Coordinator will give them access to the Master Course once the meeting is completed so they can copy it into their assigned course shells in Blackboard.
September 2019 – December 2019: <i>Fall semester test.</i>	<ul style="list-style-type: none"> • The students will complete the gamification version of this course. • At the end of the semester, surveys will be sent to the Students to see what they thought about taking a gamified course. The survey will also ask for any suggestions they have to improve the user experience. • Faculty will be surveyed to see their satisfaction in the course set-up and delivery.

	<ul style="list-style-type: none"> • GLO reports will be done and compared to the ones done at the beginning of the grant process to see if there is an improvement in grades of the interactive lectures verses the reading quizzes. • Any needed course updated will be made by the Instructional Technologist and Course Coordinator.
<p>January 2020 – May 2020</p> <p><i>Spring semester test.</i></p>	<ul style="list-style-type: none"> • The students will complete the gamification version of this course. • At the end of the semester, surveys will be sent to the Students to see what they thought about taking a gamified course. The survey will also ask for any suggestions they have to improve the user experience. • Faculty will be surveyed to see their satisfaction in the course set-up and delivery. • GLO reports will be done and compared to the ones done for Fall 2019 and at the beginning of the grant process to see if there is an improvement in grades of the interactive lectures verses the reading quizzes.
<p>June 2020:</p> <p><i>Final Report</i></p>	<ul style="list-style-type: none"> • A final report will be created for the Department Chair with the GLO method of assessment of assignments and final grades. • Any suggested modifications from the surveys of Spring semester will be completed.

Budget

The budget for this project includes research of course materials, the purchase of Articulate Storyline and training of the Course Coordinator. There are many items that are not listed below because they fall into the general job duties of the Instructional Technologist, Instructional Designer and Course Coordinator so compensation therefore not required.

Budget Category	Description	Requested \$
I. Course Development Research & Selection of Course Materials <i>(Since book is being discontinued new resources have to be located)</i>	\$25.00/hour @ 40 hours \$1,250	\$1,000
II. Software Purchase Purchase of Articulate Storyline 360	1 software license plus tax	\$1,385
III. Training of Course Coordinator Training sessions for Articulate Storyline and Blackboard Features <i>(Training is not part of the standard contract for Faculty hours)</i>	\$25.00/hour @ 8 hours	\$200
Total Requested Funding		\$2,585

Evaluation and Assessment

Since this is the first course to be gamified at Stark State College, it's critical that the results of the first year be evaluated to ensure it's a good format for students. Evaluating results will be done in multiple ways. The first, will be through surveys to students to see their satisfaction with taking a gamified course. Since these are video game majors, their feedback of what they liked and disliked will be very valuable for updates in the course. The second, will be through surveys to the Instructors regarding their experience teaching a gamified course. Since there is no new technology for instructors to learn and the course will be prepared for them, it's a matter of understanding how interactions with students went and if they liked teaching a course that was set up in this manner. The third assessment will be done using the GLO reporting system. Grades from Fall and Spring 2019 will be compared to the Fall and Spring 2018 grades to see if there was a positive impact on students. Final grades and those of reading quiz grades verses interactive quiz grades to see if these assignments have better met the needs of the students. The final assessment will come from the Course Coordinator, this will be a summary of his experience in updating the course and his suggestion of if further courses should be created in this manner. All of these assessments will be compiled into the final report that is presented to the Department Chair in June of 2020. Once the results are reviewed, it will be determined if the gamified approach was successful and if future courses should be developed using gamification.

Continuation and Extension

This grant request will fund the initial cost research of materials, training of the Course Coordinator and the Articulate Storyline Software. This investment will allow for an updated course, since it's the responsibility of the Course Coordinator to continue to keep courses updated after development, there will be no additional funds required in the future for course development. The initial training of the Course Coordinator is also an expense that will not be incurred in the future, new Course Coordinators are expected to take training on existing software used in a

course. They will have the option of scheduling training with the Instructional Technologist or reviewing the documentation that was created for the initial Course Coordinator training. The only foreseeable future cost would be updating the Articulate Storyline Software. This cost has been discussed with the eStarkState department and it's been approved that the yearly fee would be part of their budget since it'll be located in the Resource Lab that eStarkState maintains. Since this will become part of their yearly budget, the software will then be made available to other instructors who would like to create interactive content. Since this software has been proven to increase grades when used at Stark State College, it's believed that this is an ideal continuation of usage.

References

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