Creating an Engaging Experience in Game Design for College Credit Plus Students

Seminar: Educational Psychology 5100:624
The University of Akron

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July 30, 2019

Introduction – Jessica Aubley

In 2015, Community Colleges in the state of Ohio began to see a shift in their student population. Students enrolling for classes are younger than ever before. Many of them are enrolling as part of the College Credit Plus (CCP) program, which allows students as young as those in 7th grade take college courses for credit. Most CCP students are taking classes while completing their high school degrees. Prior to the CCP program, many students taking college courses had been above the age of eighteen and had completed high school degrees. This change has caused struggles for faculty members. These younger students tend to need assistance with organization, have a difficult time processing information in the course reading materials, and they struggle with applying their knowledge to assignments. We see this frequently at the college at which one of us works, referred to as The College for this project. We must find ways to help these students succeed in courses while maintaining academic rigor. This project will address the redesign of a Game Development course using the principles of Universal Design for Learning and Gamification.

In 2014, the CCP program was introduced in the State of Ohio. This program "provides students in grades 7-12 the opportunity to earn college and high school credits at the same time by taking courses from Ohio colleges or universities" (College Credit Plus, 2019). The 2017-2018 report stated that 27,443 CCP students are taking an online class. These students will be the focus for this project as the course we will redesign is an online course. Participation in this program is 58% female and 42% male. White students make up 71.6% of the students who participate (Ohio Department of Education, November 2018). The College has created innovative programs which focus on under-represented students. Providing quality education for diverse students is a priority at The College. This goal comes with a series of challenges,

however; many of these students do not have access outside of school to the resources they need, including computers and textbooks. As we re-develop this course, it is important to keep the limited access to resources in mind. All lessons need to be completed in a reasonable amount of time so students can complete their work at their schools where these resources are available.

This student population has been chosen because we identified that they are struggling with completing courses. While many of them do well, it is clear from their questions and submissions that we can do more to improve their learning experience. We believe that it is critical that they succeed in these classes because these classes set the tone for their college experience, and students begin to build an official college transcript at The College with the grades they earn in their CCP classes. There are several theoretical perspectives that influence CCP students, and we will focus on three of them. One of these perspectives is *Biological and Sociocultural Influences*. Students in the age range of the CCP (grades 7-12) are still developing and maturing in significant and different ways, even based on their gender. The young men tend to hide behind their computers. They rarely ask questions on the online question board and tend to participate less than the girls in their class in the course discussions. Creating opportunities for them to participate without singling them out is a key to helping these students succeed. The second perspective on which we will focus is *Self-Efficacy*. Since this is an online course, self-efficacy is very important. As course designers, we must create content that students understand and help them believe they can perform the assigned tasks. The third perspective will be the *Goal Theory*. The students will have the opportunity to set their own goals on the project in the course. This will allow them to see how setting short-term goals will allow them to reach the long-term goal. These goals will also give the teacher something to measure success on throughout the project. This will promote achievement motivation throughout the semester

(Dweck, C., 2000). By incorporating the theories and perspectives, we believe we will be able to create a course that allows these CCP students to be engaged with classmates and the Instructor and learn the course content.

Analysis – Mary Cooke and Jessica Aubley

Theoretical Perspective #1 – Biological and Sociocultural Influences

Biological and sociocultural influences are important as a framework to design the lesson to meet the biological and learning development needs of all students in the class. This is important since students as young as in 7th grade are eligible to take this college course as part of the CCP program. Biologically, there are differences between the brains of boys and girls which affect the learning of each. Since this class is sixty percent male, we must examine the differences to ensure we are supporting these students. The Instructor reviewed grades from the last four semesters that she taught this course, the pass rates for males is around twenty percent lower than it is for females. This was a bit shocking but there are many parts or the adolescent brain that contributes to this:

Hormonal Effects on Brain Development

Testosterone – boys' brains are "washed" in this hormone as early as 6 - 7 weeks during gestation. Testosterone changes the structure of the brain and impacts the flow of information from one hemisphere of the brain to the other. The nerve fibers between the two hemispheres, the Corpus Callosum, is made less efficient in boys than in girls. Boys will need to take more time to think about his beliefs than a girl, especially if there is an emotional component involved (Mudrey-Camino, Misunderstood Boys?). As a result of this hormone, females also have stronger language, written, and verbal skills.

We believe the biological influence of testosterone in boys has an impact on this course. Many of the labs in the course contain written assignments. These labs require students to provide extensive detail on what they have learned. This is a struggle for the male students. The structure of submissions is less organized, they have a difficult time following the directions of assignments, and they struggle to form complete thoughts throughout their writing. This results in low scores on labs. “Boys measure everything they do or say by a single yardstick; does this make me look weak?” (Tyre, 2006, p. 49). Therefore, they tend to avoid contacting their Instructor to ask questions about their assignments and the feedback they receive. They are also resistant when the Instructor requests a virtual meeting to discuss labs grades. Many times, the Instructor can’t get through to them, and the boys just seem to give up. They don’t want to discuss their struggles and what they can do to improve their lab work. This is a very common thing we see with males in the CCP Program.

Serotonin – is a neurotransmitter by which information from one nerve cell reaches another. Serotonin calms a person’s emotions, helps control impulsive behaviors, aids in good judgment, and helps regulate the speed of the brain. A relationship between insufficient levels of serotonin and depression, and even suicidal tendencies, has been established. Generally, girls have higher levels of serotonin than boys (Mudrey-Camino, Misunderstood Boys?).

This class is not easier for female students. While their communication skills are more developed, many of them also have questions regarding the lab requirements. Since they have higher levels of serotonin in their brains, this helps them stay calm instead of getting upset that they are struggling. The girls are more likely to email the Instructor and ask for clarification and assistance when needed. They are also more responsive when the Instructor wants to have a virtual meeting. Many times, when the girls get on a virtual chat, the Instructor learns way more

about what is going on then she intended to. The girls are open about talking about their lives and struggles. This is helpful since it allows the Instructor insight on their lives on how to best support them to succeed in the course.

Brain Development

In addition to the differences between boys' and girls' brains, we also need to look at neurological and physical brain development in both boys and girls, particularly in adolescence, since adolescent boys and girls will be enrolled in the class through the CCP program. We will focus on the cerebral cortex, which is considered the intellectual or thinking brain. The cortex, "is where reason, logic, and rational thinking originate. During adolescence, the cortex goes through a major period of growth and change that help adolescents' transition to adulthood" (Health Federation of Philadelphia, n.d.).

The prefrontal cortex, located right behind the forehead, is necessary in its maturity for good judgment, impulse control, problem solving, goal setting, planning, organizing, and other skills necessary for adults. Beginning at age 9 or 10, the prefrontal cortex has a growth spurt and begins to thicken. At age 11, the synaptical pruning process begins, where new experiences encourage more brain connections and unused connections get eliminated (Health Federation of Philadelphia, n.d.). During this time, myelination occurs, when neural fibers are coated with a fatty sheath (myelin) to improve message transfer (Mudrey-Camino, Misunderstood Boys?). The prefrontal cortex is the last brain region to complete myelination. In boys, according to an infographic by the McCallie School for boys, boys' brains are half developed at age 15 and not fully developed until age 30. In girls, half their brains are developed at age 11 and are fully developed at age 22 (McCallie School).

The CCP students in Game Design struggle with the weekly structure that is currently used. Each week, there are multiple learning activities and assessments the students are to complete. This may include reading chapters of their textbook, reviewing notes, watching videos, completing a reading quiz and writing a paper about what they have learned. The current instructions state that the student should review all materials and then complete assignments. While this may be the ideal structure for adults, it is not for younger students. They have a difficult time reviewing all the materials and then critically thinking how to apply them to their assessments. Their brains are not fully developed in prefrontal cortex functions. Their problem-solving skills and organization of data is not as strong as in adult students. These students would do better with tasks broken down into easy to understand steps.

Theoretical Perspective #2 – Self Efficacy

Self-efficacy is another important theoretical perspective to consider with the students enrolled in this class.

Albert Bandura gave the definition of self-efficacy as “People’s judgments of their capabilities to organize and execute courses of action required to attain designated types of performances” (Schunk, 2014). Self-efficacy places an important role in student determination to accomplish a task, even when they encounter difficulties. Students with low self-efficacy for getting a task accomplished will tend to avoid it, where students who believe they are capable of accomplishing the task will put in more work and persistence than those who doubt their abilities (Schunk, 2014). Suggestions are to give adolescents simple instructions, both verbal and written; to avoid expecting teens to multi-task; and to avoid complex directions will also affect students’ self-efficacy.

One area the CCP students struggled was understanding the information in the course syllabus. They were advised to read it at the beginning of the semester, but it was clear many of them either did not read it or did not understand the statements it contained. There was a lot of confusion on the course policies regarding the submission of late assignments, class attendance and what needed to be included in an email to the Instructor. The Instructor found a great way to clear up this issue. She created a syllabus video that provided students with a visual walk through the syllabus. She explained each part of the syllabus as simply as possible. Sometimes, the verbiage the College requires can be confusing to students. She explained her course policies, what the student should do if they have a disability, where tutoring is available, and what plagiarism is. This video helped students understand the important things they needed to know. It also resulted in the Instructor receiving less emails from confused students. This was a win for all.

It is believed that there are four sources from which people get the information to evaluate their efficacy beliefs: (a) actual performances; (b) observation of others; (c) forms of persuasion, verbal or a different form; and (d) the psychological states, partly from which people judge their capability, strength, and vulnerability (Artino, 2012). The first source, actual performances, are the strongest influences on self-efficacy (Artino, 2012) and (Schunk, 2014). When students experience success in the performance of accomplishing a task, higher self-efficacy results in them. Success builds upon success, and students are encouraged to continue to work and persist to improve their sills, which will make future achievement success more likely (Schunk, 2014).

Bandura's definition of self-efficacy includes a student's ability to "organize and execute courses of action required to attain designated types of performances," which relate self-efficacy

to competence in specific tasks and situations and include cognitive skills and behavioral actions to accomplish the task in a given area (Schunk, 2014). Rather than a student thinking he or she was good in reading and writing or good at math, self-efficacy would be a student's belief that he can comprehend a passage he read and write about its main theme, or the belief that the student can solve the algebraic equation she is learning in class.

According to Schunk, Meece, and Pintrich, self-efficacy can have a dramatic motivational impact in students. When self-efficacy is high, students will try new tasks to grow in their skills and capabilities, but when it is low, students will avoid tasks that could help them learn (Schunk, 2014). Self-efficacy also affects how students view corrective feedback (Hinton).

Self-efficacy is critical to CCP students. Positive reinforcement is something these students strive for. When they receive feedback that is negative, they tend to become easily discouraged and do not put as much effort into their coursework. When giving feedback, the Instructor makes sure she always provides something positive about the student's assignment. For the students, this is an encouragement they need as they have worked hard on their assignments. The Instructor also states details suggestions for improvements. While this feedback can be more difficult for students to accept, it provides them with ways to grow their skills.

Since this is a fully online course, it is worth considering self-efficacy in the online learning environment. Researchers found that in online courses, there are five dimensions of self-efficacy, for students to accomplish: (a) completion of an online course, (b) interaction socially with classmates, (c) handling tools in a learning management system, as used by most colleges, (d) interaction with instructors in an online course, and (e) interaction with classmates for academic purposes (Shen, Cho, Tsai, & Marra, 2013). One finding of the study was that self-

efficacy to complete an online course is related to variance in satisfaction. This "shows students' self-judgment about their capabilities to complete an online course is critical for their satisfaction in the online course" (Shen, Cho, Tsai, & Marra, 2013). Additionally, when online instructors are proactive in encouraging and monitoring online social interactions, this helps students develop the self-efficacy needed to complete an online course (Shen, Cho, Tsai, & Marra, 2013).

When measuring the course with the standards above, the course has many of the dimensions needed for self-efficiency. Most students complete the course, the average grade in this course is currently a B. We feel this can be improved with a redesign. The Blackboard learning management system is used in the course. It's a stable system that is easy for the students to use. They receive an extensive training of how to succeed online prior to the course. They are required to take this training and pass it, or they do not have access to the course. The Instructor posts announcements, sends grade reminders, provides detailed feedback and answers emails within a twenty-four-hour period. The areas where this class is lacking are social interactions and academic interactions with classmates. Currently, the only interaction they have is the introduction discussion board. For the students to feel like part of a community, this will need to be improved.

Theoretical Perspective #3 – Goal Theory

Goal orientation theory is a social cognitive theory of motivation towards achievement. Because self-efficacy and goal attainment are closely related, we will discuss goal theory as an additional perspective to strengthen learning for the students in this class.

Social cognitive theorists believe goal setting to be a key motivational process for students. When students have a goal and high self-efficacy to attain it, they will engage in

activities they believe will help them attain their goal. It is a process that strengthens and builds upon one another: as students see progress in attaining the goal, their self-efficacy is strengthened; motivation is strengthened and new skills are attained (Schunk, 2014).

The current course has learning objectives but does not have any goals listed. In the past, it was assumed that the students understood that they should review the learning objectives and set a goal. This does not work well for adolescent students since they have difficult time with critical thinking. CCP students do not understand that these learning objectives help them reach the goal of learning the required course content. The Instructor has had multiple comments from CCP students that they do not understand why they must cover boring items like types of games. They want to learn about video games; they do not care about board games and educational games. This confusion can be reduced by having goals in the course. These will allow the students to understand how reviewing the course materials will help them reach a proximal goal.

In education, the Social Cognitive Theory states that goals that are proximal, specific, and moderately difficult provide the greatest motivational benefit to students. In addition, the Social Cognitive Theory says that students' commitment is also critical to attain a goal, as well as choice: when students set their own goals rather than having goals assigned, they are often better motivated to complete them (Mudrey-Camino, Chapter 5 Notes - Goals and Goal Orientations).

Currently, students are not assigned the task of setting their own goals. In this course, the students have a three-week long assignment of creating a game. Many of them procrastinate and the end-result is a rushed project that does not meet requirements. The students know what their end-result should be but seem overwhelmed at the creation process. This is a project where the students would benefit from setting a, long-term, distal goal and several, short-term, proximal

goals. We believe this would improve students' commitment, because when students are more motivated to accomplish goals, they set themselves versus assigned goals (Schunk, 2014).

In addition to these elements, researchers further defined goal theory to include the concepts of mastery approach, performance approach, mastery avoidance, and performance avoidance. Student behavior can go towards a goal (approach motivation) or away from something undesired (avoidance motivation).

"Approach motivation comprises emotions, cognitions, and actions that are driven by the wish to achieve desirable results (e.g., good grades and feelings of competence). It can be described as the energization of behavior which directs an individual toward a positive outcome. In contrast, avoidance motivation comprises emotions, cognitions, and actions that are driven by the wish to avoid an aversive situation or undesired consequences (e.g., punishment, threat, and failure) and can be described as the energization of behavior away from a negative stimulus" (Wimmer, 2018).

The students in this course receive detailed feedback on their assignments. For some students, this is a good motivator since they have achieved desirable results. For other students this can cause avoidance motivation since the feedback may include several points where the students failed to do well on the assignment. This is a tricky situation since we want to encourage students but at the same time advise them of how to improve. We see this area as a place of opportunity for our project. We can implement awards that are not just based off the Instructor's feedback to help motivate students.

The final topic under the Goal Theory perspective to discuss is the "growth mindset," or incremental ability versus innate ability. Psychologist Carol Dweck' Self-Theories contrast the "entity view" with the "incremental view." Dweck showed that "students who hold an entity theory of intelligence are less likely to attempt challenging tasks and are at risk for academic

underachievement (David, 2014). Those with an entity view treat intelligence as stable and fixed, and these students want to look smart and avoid looking unintelligent to others (David, 2014). Those with an incremental view treat intelligence as changeable and that it can grow. These students do not focus on the outcome and what it will say about them, but rather on opportunities to get better. They often get satisfaction from learning (David, 2014).

Growth mindset has been a focus at the College. Last year, there was a session held about creating a course syllabus that was student friendly. While there is some verbiage that is required by the College, there is also a large part of the syllabus that the Instructor creates. During this session, the Facilitator encouraged the attendees to read their syllabus and determine if it sounded friendly. The Instructor for this course, decided to make major revisions to her class policies area. Instead of stating the policy in a legalistic manner, she opted to reformat it into a question/answer format. Each policy was explained like she would do it if a student was in her office. This helped the students better understand the class policies and avoided them looking unintelligent by asking questions. This has been very helpful for the CCP students.

One struggle that is seen in the course is the students with an entity view tend to avoid asking questions on the class help board. This is an optional part of the class. The Instructor's report shows that many students access this board, but they never ask questions. This may be because when a student posts their name is display so they feel as though they look unintelligent asking questions. We believe we can make significant changes by adjusting the settings on this discussion board.

Applications – Jessica Aubley & Mary Cooke

After exploring the theoretical perspectives *of Biological and Sociocultural Influences, Self-Efficacy* and *Goal Theory,* we have concluded that this course needs to be redesigned to

ensure it meets the learning needs of CCP students. In this section of the paper, we will focus on the elements that will be redesigned. It's important to note that we will keep the current textbook and Course Learning Objectives. The goal is for better engagement of CCP students while upholding Academic Rigor.

During this process, we will also on the Principles of Universal Design (UDL) for learning. "UDL 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 all, 2017, p. 2). Since we know CCP students have various learning styles, it is critical we keep this in mind when developing directions, learning activities and assessments. This is a focus for development at the College. There are various methods they have tested that work well for the UDL approach. These will be reflected in this section of the paper.

Our first focus for change will be the structure used in the lessons. Each lesson follows the same pattern of having an overview, a materials folder and assignment folder. The instructions state that the student should complete all the materials before starting on the assignments. This can be difficult for CCP students since they are still in the process of developing critical thinking skills. The Health Federation of Philadelphia suggests that to effectively teach both boys and girls in adolescence tasks need to be broken down into specific steps. We will do this by placing the learning materials, activities and assessments in a numbered order in which they should be reviewed and completed. A chart will be added that shows which learning materials and activities should be used for each assignment, this will help the students see a clear connection between materials, activities and assessments. There will also be a video added to help auditory learners understand the order they should complete This modification

may seem simple, but it will allow the students to complete tasks on a step-by-step basis and decrease anxiety of not understanding what materials pertain to each assignment (Learning Styles: The Four Modalities - CofC CSL., n.d.).

We believe the change in instruction will also promote their self-efficacy in the course. Schunk suggestions providing adolescents with simple instructions, verbal and written helps them have a better understanding of their tasks (Schunk, 2014). Our planned format will support this suggestions as students will have easy to follow instructions for completing the weekly lessons in the course.

After we complete the change of structure, we will reformat the area in each week that states what the students should learn. Currently, it is just a list of learning objectives. These were developed using Bloom's taxonomy. Each one is designed to measure a specific concept the student will learn. While these are easy for adults to understand, the Instructor has found that CCP students don't have the ciritcal thinking skills to see how these apply to their course work. The weekly learning objectives will be left in place but a goal statement will be added for each week. It will be specific, measurable and have an element of difficult to it. This will ensure that it's a valid goal. We are aware that when students set their own goals, they are better motivated (Mudrey-Camino, Chapter 5 Notes - Goals and Goal Orientations). We plan to incorporate students setting their own goals in the project area of the course, but for this section, we believe it is better for the goal to be listed as an additional way to clarify and strengthen understanding of the week's learning objective. These goals will serve as a starting place for the students and allow them to better understand what they should learn when completing the lesson. We believe this will reduce confusion regarding students understanding why certain course content is covered.

Our next focus will be on the assessments. The current course includes reading quizzes, a three-week project, written labs and a final project. We will revise the assignments for the course to be more engaging and promote active learning.

The reading quizzes will be replaced with interactive lectures where each book concept is presented in an audio and written format on the screen, there will be items the student must click on to review, videos they will watch and review questions after each chunk of information. These review questions will replace the current reading quiz points. The Army & Navy Academy states, “boys tend to be more physical” and “more mechanical” than girls (Army & Navy Academy, n.d.). Interactive lectures help keeps the students engaged and allow boys the opportunity to be a bit more “active” in their learning. While we cannot create an environment where they are physical, we can create an environment where they are using their minds in a mechanical way to reach the correct answers for each part of the interactive lecture.

These types of lectures have been tested at the College and are proven to be effective. In Spring of 2018, the College’s Instructional Technologist worked with an Ethics Adjunct to create interactive lectures for her class. Understanding of the concepts improved along with final grades. These lectures are beneficial for all students and they have elements that support various learning styles. Auditory and visual learners enjoy the format as everything is presented with imaging, video and sound. Tactile learners enjoy the hands-on learning approach of reviewing content, clicking on various items and having the review questions in each section. Kinesthetic learners benefit from the information being chunked into sections as they tend to struggle with concentration (Learning Styles: The Four Modalities - CofC CSL., n.d.).

Written labs will also be revised. Since we have a greater understanding of the development of the adolescent’s brain, we are aware that written labs do not work well for male

students. They have higher testosterone levels and can struggle with language, written, and verbal skills (Mudrey-Camino, Misunderstood Boys?). While we can't eliminate the labs, we can modify them to include different formats and put the instructions in a step-by-step format. Instead of only having the option to complete a paper, we will modify the directions to allow students to write an essay, create a PowerPoint with the concepts listed, or a video presentation. The goal is to give the students multiple forms of assessments to ensure that brain development is not a barrier for success. This was tested in Spring of 2019; the Instructor changed the final from being a paper to allowing the students to either write an essay or create a video presentation detailing the planning of a game. Most students took advantage of the video presentation option. Both assignments had the same requirements and rubric for grading. Grades on the finals were significantly higher when compared to the prior term. This is an indication that multiple forms of assessments will benefit CCP students.

Discussions will be added throughout the course. Some of the current topics used for labs can be revised into discussions. This will allow the students social interactions with their classmates for academic purposes. Social interaction is considered one of the five dimensions of self-efficacy for an online course so it's critical we add this element to the class (Shen, Cho, Tsai, & Marra, 2013). This will also give the students a sense of community in the course which is a goal of the Instructor. In her experience, she has found when students feel like part of a community, they are more comfortable asking questions and assisting classmates when they post questions on the class help discussion.

While we are working with the class discussions, we also modify the settings on the class help board. The learning management system has the option to make all posts on the board anonymous. We will incorporate this setting. Our hope is it will create an environment where all

students feel safe asking questions. Their names won't be listed so they won't have to worry that others will know it's their question. The description on this board will be updated to alert students that when they post, their names will not be listed. We believe this will encourage more posts. This will allow those with an entity view to be able to participate in asking questions without having the fear of looking unintelligent to their classmates and Instructor (David, 2014).

Since the revised final project is working well for the students, we will not be making any changes to its format. The Instructor's results from Spring 2019 were positive. She feels this assignment is easy for students to understand and allowing them to choose the format which they complete is beneficial. This fits well into UDL since different learning styles benefit from hands-on assessments.

The final revision to assessments will be to the three-week game development project. Currently, the students are assigned the project and work independently through the three weeks; there are no Instructor check-ins. The male students tend to not ask questions since they do not want to look inferior. If they do ask questions, most come through with a panic in their tone. This is caused by lower levels of serotonin in their brains (Mudrey-Camino, Misunderstood Boys?). They would benefit from an approach that is planned better, and more Instructor feedback.

The project will be modified to include a goal-formatted approach that helps them plan their activities. The student will be required to set a long-term (distal goal) of what they will accomplish. For instance, the student may set a goal of developing an online learning game that teaches third graders about the benefits of eating vegetables. This goal will be submitted the week before they start the project and will allow time for the Instructor to review the goal and provide feedback on if the goal is attainable in the time period. The students will also be required set weekly proximal goals. Each week of the project, they will be required to upload their goal

by Tuesday to the assignment box. They will then be required to upload proof that they achieved their goal or an explanation of why they did not achieve their goal by Sunday. This will give the Instructor an opportunity to provide feedback on the stated goal and their progress in the project. Since the students are setting their own goals, they will have a greater motivation for goal completion (Mudrey-Camino, Chapter 5 Notes - Goals and Goal Orientations).

The College focuses on “SMART” goals so this will be introduced to the students and they will have a lesson on creating these goals. “SMART” is an acronym which stands for specific, measurable, attainable, realistic and timely. Specificity and measurability provide an external refence (such as time, space, increment, etc.) to gauge progress, whereas vague “do better” goals are ambiguous and often have little effect on motivation. Removing ambiguity allows one to focus on precise actions and behaviors related to goal achievement. The more specific the goal, the more explicitly performance will be affected” (Redmond, 2016)**.** We believe this will be a positive change since the students will be creating their own goals and be held accountable for completing them.

The last course modification we will make is adding gamification elements. The learning management system has a build-in badging system. Badges will be created for important accomplishments in the course such as receiving an A on the students’ three-week project or mastering the understanding of game planning. These badges will be placed throughout the course and will only become active is the student accomplishes the goal. We believe gamification will improve self-efficacy since it relates to the effort and persistence needed to accomplish those goals. These badges will not be too easy to achieve, the students will need to put in a sincere effort and show understanding of course concepts on their assessments. The reason standards will be set like this is students with high self-efficacy were “more likely to be

cognitively engaged in learning when the task was perceived as difficult, but less likely to be effortful and less cognitively engaged when the task was deemed easy (Schunk, 2014). This has been tested in other Computer Science courses at the College and has been a great motivator for the students.

Reflection and Conclusion – Jessica Aubley & Mary Cooke

Reflection - Jessica Aubley

This project was fascinating! When Mary and I were first brainstorming about ideas, I thought the Game Design course may be a good fit. As we continued evolving this paper, I realized that there were more areas of improvement than I had initially thought of. For me this is very exciting since the College is focused on achieving higher pass rates in classes. I plan on implementing these changes for Spring 2020. The course will run for a full year with these changes and the final grades will be compared to the prior year to see if these changes have made an impact on student performance.

At the beginning of this project, I thought Mary and I would have an easy time determining course improvements. I have been teaching CCP students for several years and have been able to identify challenges that they face in online classes. I thought I had a good insight on what my students needed. After reviewing the extensive research that Mary compiled over our chosen theoretical perspectives, I was stunned to realize that I didn't have as good of insight as I had thought I had. I realized that there were parts of each theoretical perspective that I lacked good insight on.

When we started this project, I believed I had a good grasp on the biological and sociocultural influences my students faced. There is a clear distinction in between female and male CCP students. My female students tend to express themselves at a higher level. Their

written work also tends to be more detailed. I was not aware this was caused by lower testosterone levels in their brains (Mudrey-Camino, Misunderstood Boys?). Having a greater insight on what is happening in the boy's brains has made me realize that I am a bit too critical on my male students. I tend to get frustrated that they aren't providing as much detail in their written labs. The modifications we have made to the written labs will help the boys since they will have the option of choosing what type of assignment, they are most comfortable creating. I believe many of them will select the PowerPoint presentation where they can use bullet points instead of having to create lengthy amounts of text.

I also had not realized that the development prefrontal cortex goes into adulthood. Since their brains are still developing, they struggle with multi-tasking and critical thinking (McCallie School). This research was very helpful as I see many students struggle with understanding the directions in the course and being able to apply concepts to their course work. Now that I have a better understanding of why there is a disconnect, I can improve my communications with them by creating step-by-step directions and using media tools to further explain these directions.

When we started this project, I had no clue what self-efficacy meant. Once I reviewed the information covered in this theory, I realized I see this frequently in the course. If a student believes they can accomplish a task they do whatever necessary to succeed. When students don't feel they can accomplish a task they resist doing it and it typically results in them failing since they are not submitting their assignments (Schunk, 2014). The suggestions we found in our research were to make sure students had simple instructions so they could fully understand the tasks set for them. This allows them to have more confidence to complete assignments. This project has helped me realize that I need to do a better job ensuring my students understand the expectations on each assignment and continue to encourage them that they can do anything they

set their minds to. For Fall semester, I am going to make it a priority to send encouraging emails to students who are not doing well in the course. I want them to know they have the potential to improve and that I am there to help them do so. These emails will ask if they need assistance in breaking down the instructions on assignments. I hope they will accept the help and work towards achieving a higher grade in the course.

I also did not realize that student to student interaction was so desired. Many times, I have complaints from students that they must participate in discussion boards. They feel like this is busy work. This project has made me realize that student to student interaction needs to be a priority for self-efficacy in an online course (Shen, Cho, Tsai, & Marra, 2013). It's important to build a learning community. I will focus on doing this in my classes. I am planning to use discussion topics that guide the students into deeper academic conversations to ensure these discussions are beneficial to them.

Goal theory was my favorite learning experience from this project. In the past, I have relied on the learning objectives as explanations for what students should be learning in the course. I now realize this does not work well for CCP students. They would benefit from having specific goals which they can strive to achieve. I understand it's more impactful for them to set their own goals but in this case, I think having goals will help them better understand why we are covering specific course material and how and where they will apply it (Mudrey-Camino, Chapter 5 Notes - Goals and Goal Orientations).

This project gave me a true understanding of my learners. I now realize that I had fallen into the mindset that CCP students need to learn how to adapt to college. I had thought my course was ideal for them and the issue was they were not prepared or too were lazy to do what was needed to succeed. This could not be further from the truth. When I started evaluating the

students against the theoretical theories, I realized my assumptions were unkind and unfair. There are many things I can improve on. Most of these improvements are simple changes on my end and will result in a course the better supports the learning needs of my CCP students. I'm excited to apply what I have learned and conduct a comparison to see if these changes have impacted grades in the course My hope is these changes will give CCP students a better experience in the course. This experience can lead to them wanting to continue their journey with higher education.

Reflection – Mary Cooke

I am learning so much in this course, and I learned a lot through working on this paper. I am familiar with the CCP program (our son participated in his final two years of high school), and this was very interesting to me to work with Jessica and see her perspective as a faculty member teaching an online course with CCP students. Teaching a course that is fully online adds a greater burden on the faculty member in working with CCP students and helping them meet the learning objectives and do well in the class. I have learned much from how Jessica's students exemplify different theories we focused on in this paper. For example, the disorganization and poorer writing from the boys in labs has a biological, brain development component as a cause. Some examples of how to modify the course to best serve the biological brain development of boys and girls: being very specific and ordered in the list of instructions; making the discussion board to ask questions anonymously; and including videos in the learning materials along with reading materials.

I also learned how important self-efficacy in the life of a student. I know many students who succeed because of their hard work and determination, even if they had to take fundamental math courses or attend writing labs before they could take the college general education courses in math or composition. These are not students who do not consider themselves particularly smart, but they do believe they can learn the content and are willing to work hard to do so. I thought the strategies of giving

adolescents simple instructions verbally and in writing, and not expecting teens to multi-task, were some good and easy-to-implement ways to help students have higher self-efficacy.

Practically, I learned that I spent too much time on our Analysis section researching the theories we chose for this paper. I spent hours and hours doing research, partly because I wanted to give a full description of each theory, and partly because I wanted to give a full analysis of each theory for Jessica to be able to more easily give examples from her class. I feel this point also exemplifies the Attribution Theory: the result of my spending too much time researching for our paper could have been avoided by the internal cause of me forgetting to read through the sample papers in the Content section of our course. I had meant to do that, but when I got into the research, I was so engrossed in wanting to write about each theory thoroughly, that my Analysis section almost took on a life of its own rather than looking at what others before me had done.

We ended up cutting a good amount of my research for this paper, which is perfect. The editing kept the important points of our Analysis in relation to Jessica's class. And, from a mastery orientation approach, the time I spent on further researching these theories enabled me to learn so much more about these theories than if I had taken a performance orientation approach and had just done enough research to fulfill the requirements of the paper. I also am very happy because I like to find the most current research I can on a topic, which I feel I did.

From the experience of writing this paper, I have gotten many new theory-based strategies that will influence me as a practitioner, a Career Services Coordinator. I feel my meetings with students are good now – I ask each student as we are meeting what they are thinking should be their "take-away," and nearly all of them can say clearly what their next step should be. After learning more about the goal theory, one strategy I am going to apply is having students set their own goals during our appointments. It is easy for me to see the next steps students need to take to accomplish their distal goal. I would often suggest those proximal goals to students as "homework" from our appointment. I am going to change my

approach to asking the students what they see should be their next step. I can help them define and keep their goals realistic, but I will now have them come up with the proximal goals.

Another strategy will be to have students set proximal goals that are in the moderately difficult range. The section of a resume that seems to be hardest for students is writing their "accomplishment statements." These are the bullet points under specific experiences where students tell not only their duties, but also incorporate their soft skills into the performance of the duties. Writing these accomplishment statements is a perfect example of a moderately difficult goal – for some students it may be closer to 50% difficulty, but for others is may be at 75% difficulty.

I also want to be aware of helping to build higher self-efficacy in each student with whom I meet. Through my conversations with students, I am often surprised how quickly I can see their level of self-efficacy and their level of confidence in moving forward in career related skills. I will be able to use what I have learned to better determine and help students grow in high self-efficacy.

In nearing the end of my master's degree in Instructional Technology, I am so grateful to learn the educational psychology theories I am learning in this course. These theories will influence my current and future work in instructional design. Right now, my work isn't full-on instructional design, but it is on a piece of it: developing effective and new ways to teach students the life skills we teach in Career Services. This is exciting to me because we have formed a team in Career Services to explore how we can do this, and I have a leadership role in our projects. In the future, I hope to be an instructional designer for either corporate training or assisting faculty with their classes. The theories I am learning here will be essential to that work as well.

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