Applying Gamification to College Student Retention and Graduation:

Play Test and Pilot Study

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Abstract

This paper reports on a pilot project to apply gamification to undergraduate advising as a strategy for improving current students' retention and graduation rates. One stumbling block to students staying in and completing their bachelor's degree is adapting to university culture and practices. An online quest designed to orient transfer students to the university was play tested with 44 students currently attending the university. Positive responses centered on the quest charting the path to graduation, creating awareness of campus programs, encouraging students to get more involved in campus events, providing a check list for opportunities at the university, giving a guide for what students can expect from school, and keeping students on track. Suggestions for improvement included incorporating more opportunities to interact online with other students, providing greater context for each activity, explaining students' options in more detail, and incorporating videos and images. The paper outlines the rationale that drove this project, the project design and its initial testing, modifications made based on the initial play testing, and describes the next step in implementing the pilot project with Fall 2014 transfer students.

Keywords: gamification, advising, graduation rates, retention rates, undergraduate students, transfer students

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Although the cost of higher education continues to rise, there is still no doubt that a college degree is a solid investment. The Economic Policy Institute recently reported that the unemployment rate for young high school graduates is 22.9% compared with 8.5% for young college graduates (Shierholz, Davis, & Kimball, 2014). Underemployment for the same groups is 41.5% and 16.8% respectively. Moreover, the average hourly pay for college graduates continues to increase whereas the average hourly pay for those with only a high school diploma or some college—include an associate's degree—has stagnated (Leonhardt, 2014). An analysis of the underpinnings of this dramatic differential in wages suggests, "As physical labor has given way to cognitive labor, the labor market's demand for formal analytical skills, written communications, and specific technical knowledge—what economists often loosely term cognitive skills—has risen spectacularly" (Autor, 2014, p. 845). Advice for high school students: Go to college, stay in school, and complete your bachelor's degree.

Unfortunately, while high school students may start college, many do not finish. Graduation rates for students attending four-year public and private universities in the U.S. are 38.6% in four years, 54.3% in five years, and 58.7 in six years (National Center for Education Statistics, 2012). The numbers are even worse for public institutions: 32% (four years), 51.1% (five years), and 56.5% (six years). The California State University system, the largest university system in the U.S., performs below national averages. Although the six-year CSU graduation rate for first-time freshmen has improved since the 1990s (39.6% for the 1995 cohort; 51.8% for the 2008 cohort), few students graduate in four years (17.8%) and about 40% still have not finished after 10 years. Six-year graduation rates are even worse for African American (35.9%),

Latina/o (44.9%), and Native American students (47.5%). About one-quarter (25.1%) of first-time freshmen drop out after their first year. Transfer students fare somewhat better, with over half (56.3%) graduating in three years and nearly three-quarters (71.6%) finishing in six years. Still, few (27.8%) complete their degrees in two years (California State University, 2014). Other factors, such as socio-economic status and employment (many CSU students work part-time or full-time) likely play a role in students staying in and graduating with a bachelor's degree.

To address these problems with student retention and graduation, we initiated the COMM4U project, which applied the principles of gamification—inserting game elements into an activity that is not a game. We designed COMM4U to provide a student-centered, comprehensive, proactive, holistic approach to navigating college student life in a fun way (i.e., a nontraditional mode of advising), increasing the chances that students will remain in college and graduate in a timely manner. In this paper, we outline the factors that contribute to student retention and graduation, review the research on gamification and identify the ways in which gamification can play a role in enhancing the university experience for students, describe the content and design of COMM4U, report on our initial findings, explain the plans for the project's future, and offer suggestions for gamifying college students' paths to graduation.

Student Retention and Graduation

There are many reasons why students drop out of college and fail to complete their degrees. Research on student retention and graduation rates suggests that lack of skills in navigating the institutional bureaucracy and culture of higher education provides a key impediment to students successfully finishing their bachelors' degrees. For example, a study of City University of New York students found regular participation in advising sessions—where students learn about the requirements and procedures necessary to earn a diploma—a central

factor in graduation (Kolenovic, Linderman, & Karp, 2013). George Mason University instituted University 100, a 1-2 unit orientation course for freshmen that focuses on "time-management skills, critical-thinking skills, healthy living, and choosing academic majors and career paths" (Cambridge-Williams, Winsler, Kitsantas, & Bernard, 2013, p. 253). In addition, students are required to attend several campus events and meet regularly with advisors. Featuring class sizes of 15-18 students, the course had a positive influence on five-year retention rates (75% for course participants; 59.9% for nonparticipants) and six-year graduation rates (67% for participants; 55% for nonparticipants). Interestingly, a study in which students completed a course that focused strictly on learning skills, such as test taking and writing a paper, found more modest increases in graduation rates for participants (52.7%) over nonparticipants (44.2%; Tuckman & Kennedy, 2011). While sound academic skills are important for student success, a more holistic approach to helping students adjust to and navigate degree requirements and university life is essential to increasing retention and graduation rates. Tennessee State University, for instance, has had success in increasing student retention and graduation rates with programs that increase student involvement in campus leadership and scholarship activities (Gary, de la Rubia, Brinkley, & Thompson, 2010).

Small class sizes, participating in campus events, joining student organizations, and meeting frequently with advisors and faculty, all serve to give students a sense of belonging and community, which is directly linked to student retention and graduation (Mbuva, 2011; O'Keeffe, 2013). In addition, deciding on a major, charting a career path, developing healthy living habits, and similar practical skills help students adjust to daily university life. Yet the kinds of programs needed to promote these community-related and skills-building activities are expensive to implement, especially in public institutions where state-support is declining and tuition increases

cannot make up the gap. Thus, we sought a solution that addressed many of the factors associated with student retention and graduation that was cost-effective and motivated students to actively engage in managing their own university experience.

Gamification and Education

Smith-Robbins (2011) argues that higher education already is a game, but not one that is all that fun. She suggests three ways to gamify learning and motivate students to become lifelong learners. First, course goals must be clear, understandable, and relevant. That is, students need to know what the goals are, how to achieve them, and how achieving the goals will benefit the students. Second, give students a transparent way to track their progress on the course learning outcomes. Smith-Robbins suggests going beyond grades to include peer ratings of online work and recognition of in person contributions. Third, instructors should consider the games they like to play and ask students about the ones they like. Then instructors can explore what makes those games appealing and integrate those features into the classroom.

Research indicates the utility of gamification—the use of game elements in nongame contexts—as a tool in facilitating learning and behavioral change (e.g, Betts, Bal, & Betts, 2013; de-Marcos, Dominguez, Saenz-de-Navarrete, & Pagés, 2014). For example, gamifying a youth substance abuse prevention program resulted in greater engagement with the material, increased completion of activities, and more student collaboration (Schoech, Bovas, Black, & Elias-Lambert, 2013). Similarly, gamifying lunch choices for elementary students produced significantly improved rates of choosing fruits and vegetables (Jones, Madden, Wengreen, Aguilar, & Desjardins, 2014). Chow, Woodford, and Maes (2011) found that integrating a game simulation into an introductory statistics class increased students' retention of the material from 59% (control group) to 95% (game simulation group). Gamifying calculus homework got college

students more engaged with the class and with their progress in completing assignments (Goehle, 2013). Research on an online gamified system designed to teach people about climate change and steps to reduce it found that users were motivated to develop content for the site, engaged in climate change reducing activities, and viewed the system in a positive way (Lee, Ceyhan, Jordan-Cooley, & Sung, 2013).

Still, gamification must be done well to work. Recent studies have demonstrated that gender differences (Koivisto & Hamari, 2014), types of rewards (Domínguez, Saenz-de-Navarrete, de-Marcos, Fernández-Sanz, Pagés, & Martínez-Herráiz, 2013), and the content domain (Young et al., 2012) are key factors in the design of gamified learning.

COMM4U and Success4U: Bridging Student Success and Gamification

COMM4U is a small-scale version of a larger future project, Success4U. COMM4U was designed for students majoring in communication studies at our four-year west coast university. The goal of COMM4U—and ultimately Success4U—is to offer a student-centered, communal, self-paced, comprehensive online program that guides students on their college journey to graduation. The program motivates students to proactively engage in charting a clear path to complete their degree. By gamifying routine tasks and identifying the steps to do well at key turning points in students' college careers, COMM4U encourages students to take charge of their educational experience and trains them in essential skills for life-long learning. For example, students complete activities to outline their academic plan, find good places to eat near campus, develop their major plan, identify the classes they want to take, share ideas with others, access library resources, and similar tasks. COMM4U focuses on four strands associated with completing a degree: academic plan, professional goals, community connections, and school-life balance.

COMM4U's basic structure includes four levels—freshmen, sophomore, junior, senior—and two quests within each level. In addition, there are quests for specific student groups, such as transfer students, students with disabilities, Educational Opportunity Program (EOP) students, veterans, probationary students, and remedial students. This pilot project focused on the first quest developed, the quest for transfer students. To develop the activities associated with the quest, we interviewed department advisors, the department's specialist with the university career center, and department's library liaison to find out the essential tasks students should complete when they first enter the university. In addition, we relied on our own extensive experiences as undergraduate student advisors. Also, we reviewed institutional practices that positively influence retention and graduation rates, such as meeting with an advisor. Relying on these multiple sources, we created a list of activities that transfer students should complete, reviewed it with our interviewees, and narrowed the final tasks to the 10 most important. Our initial play testing and pilot study focused on onboarding transfer students to the university and the 10 activities we grouped together into what we called Transfer Quest Part 1:

1. Meeting with a major advisor: Students review the department's advising page and arrange to meet with an advisor.

2. Signing up for the Writing Skills Test: Students find out about the Writing Skills Test and register to take the test.

3. Developing my major plan: Students download the department's academic planner (spreadsheet) and identify the classes they plan to take in the upcoming semester.

4. Identifying upper-division General Education courses: Students review the requirements for those courses and select the ones they plan to take to fulfill the requirements.

5. Exploring possible minors: Students review the minors offered at the university and identify a minor or minors they are interested in.

6. Choosing courses for additional units: Students determine if they need to take additional units in the major and what courses they will take for those units.

7. Choosing a library PIN: Students create their PIN to access their library account.

8. Signing up for JobsNetwork: Students register for an account with the university's internship and job database.

9. Exploring the health magazine: Students sign up to receive a free online health magazine.

10. Finding out about great places to eat near campus: Students share ideas for places to eat near campus.

We developed the play and pilot tests of Transfer Quest Part 1 in the Canvas learning platform. For the initial play test, we used the quiz, discussion, and assignment submission features to develop tasks associated with the goals of the quest. We focused on identifying key tasks transfer students would need to complete to get started at the university. Our primary concern was with the basic content of each activity. We decided to rely on feedback from play testers as well as other student observers to provide insights into what would make the quest fun to complete.

Play Testing Procedures

Students enrolled in the first author's upper-division small group communication class in Spring 2014 play tested Transfer Quest Part 1 with 44 students currently enrolled at the university (but not in the class). The student-researchers—the students in the class—participated in a 75-minute training session on how to conduct the play tests and use the play testing protocol the project team developed (Appendix A). In addition, to further familiarize students with

gamification, they read, discussed, and were tested on *For the Win: How game thinking can revolutionize your business* (Werbach & Hunter, 2012). Also, students watched and discussed two TED Talks by Jane McGonigal, "Gaming Can Make a Better World" and "Massively multi-player… thumb-wrestling?"

Play Testing Participants. The student-researchers recruited participants to play test Transfer Quest Part 1. The student-researchers were given wide latitude in whom they recruited as we wanted students with a wide variety of experiences with the university to provide feedback on the activities. The student-researchers used the promise of rewards (e.g., free pizza) and gifts (e.g., gift cards to the university bookstore) to entice students to participate.

Participants in the play testing were 44 undergraduates attending our four-year west coast state university, and included 2 freshmen, 3 sophomores, 21 juniors, and 18 seniors. Twenty-four were transfer students and 20 had always attended the university. Fourteen were communication studies majors, seven were business majors, and the rest represented a wide range of majors, including psychology, chemistry, public relations, computer science, and engineering. All play testers were at least somewhat familiar with the university's learning platform, Canvas. We included students from various levels and majors to get a diversity of perspectives on the content and process of the transfer quest.

Conducting and Reporting on the Play Testing. Student-researchers conducted the play testing in a variety of locations—wherever they had a laptop and internet access. They recorded participants' responses and reactions to the activities as well as their answers to the interview questions asked. The student-researchers worked in teams to write up their reports, which they presented online to their classmates. In addition, student teams gave brief in-class presentations and answered questions in forums that included the members of the COMM4U

project team. The project team then conducted a content analysis to identify themes in the reports and the forum discussions to identify needed revisions in the site. In the next section, we discuss the key issues raised in the play testing, describe how we revised COMM4U, and explain the next steps in the project.

Play Testing Results

Play testers agreed that all activities were useful and important for adjusting to the university, staying in school, and graduating on time. Additionally, the play testers and the student-researchers offered suggestions for each activity, more global comments on the quest, recommendations for developing freshman, sophomore, junior, and senior levels that would apply to students across the university, and overall suggestions for gamifying university life to increase student retention and graduation.

Recommendations for Activities. For *meeting with a major advisor*, play testers suggested that students should be able to choose an advisor and schedule an appointment. They also suggested providing feedback for each response on the quiz and listing the materials that students should bring to an advising session. For *signing up for the Writing Skills Test*, play testers thought the quiz format did not work well and wanted more information about the WST, how to prepare for it, and its importance to graduation. For *developing my major plan*, play testers wanted more guidance, such as descriptions of courses, an overview of the major requirements, and suggestions about which courses go together. Similarly, for *identifying upper-division GE courses*, play testers wanted suggestions for courses that fit well with the major and course descriptions. For *exploring possible minors*, play testers wanted more information about the utility of having a minor, minors that would benefit communication studies majors, popular minors, and advantages of specific minors. For *choosing courses for additional units*, play testers

suggested having the upcoming schedule of classes available and identifying classes that would

meet the requirement. For *choosing a library PIN*, play testers wanted to know about the services

available through the joint campus-city library and a more detailed guide to the library. For

signing up for JobsNetwork, play testers wanted more information and sample jobs and

internships available on the site. For *exploring the health magazine*, play testers wanted a

description of the magazine or possibly other health-related alternatives for this activity. For

finding out about great places to eat near campus, play testers suggested linking to Yelp and

Groupon and including reviews on the site.

   Recommendations for Transfer Quest 1. Play testers and our student-researchers

offered these overall recommendations for Transfer Quest 1:

1. Provide greater explanation about the relevancy of each activity or task. Include
   contextual information for the activity and demonstrate how it benefits students.

2. When using the quiz function, format quizzes using short answer rather than multiple
   choice. Also provide detailed feedback for each answer, including a positive comment
   when answers are correct.

3. Incorporate more visuals into each activity. Use videos and images to gain and maintain
   students' attention as they progress through the activities and quest.

4. Provide time estimates for each activity. Let students know about how long each activity
   will take so they can determine if they will be able to complete an activity in the time
   they have set aside for it.

5. Incorporate a progress bar. This will let students know their progress in completing the
   quest.

Recommendations for Levels. The complete version of Success4U will include two quests for each level, freshman, sophomore, junior, senior. Student researchers offered the following content recommendations for these levels that would apply to all students in any major.

The *freshman level* should include some activities similar to the Transfer Quest Part 1, such as setting up a library PIN and signing up for the health magazine. Not surprisingly, this level needs to introduce students to the campus's geography and culture. Student researchers suggested that the quests at the freshman level include an exploration of campus buildings, such as the Student Union, Health Center, and Library; campus events, such as Fall Welcome Days and guest speakers; key services they might need their first year, such as the Peer Mentor Program, the Writing Center, and Campus Recreation; university requirements, such as lower-division general education courses; and basic skills, such as using Canvas (the university's learning platform), getting to and from campus, and navigating MyCampus (the portal for class registration, student billing, and similar functions).

The *sophomore level* should focus on starting to chart a clearer and more specific path to graduation. The two quests at this level should include exploring possible majors and minors, getting the most out of lower-division general education courses, and accessing college student success centers. In addition, activities should help students get more integrated into campus life and include topics such as identifying student organizations to join, attending in campus events, and participating in campus sports groups. Also, activities should encourage students to start exploring career options, such as trying out the various online resources available through the Career Center. Finally, activities that help students find the top places to get coffee/tea, quiet study spots on campus, and restaurants that are open late at night to take a break from cramming for finals encourage sophomores to learn more about the campus and nearby community.

Student researchers suggested that the *junior level* quests include a few activities from Transfer Quest Part 1, such as signing up for the Writing Skills Test and choosing upper-division GE courses. Other activities include declaring a major and minor, guiding students through the their major requirements, and meeting with a major advisor. Career-building activities include developing a resume, gathering information on internships, networking, conducting information interviews with alumni, and exploring professional organizations.

Most of the *senior level* quests activities focused on graduating and launching a career. The student researchers suggested activities on applying for graduation, meeting with an advisor to review graduation requirements, and participating in campus and department graduation ceremonies. Career-focused activities included posting a resume on JobsNetwork, participating in job and internship fairs, applying for internships, and exploring graduate degree programs. Student researchers also wanted seniors to maintain a healthy lifestyle, so suggested activities associated with reducing stress, time management, and maintaining a healthy diet. Campus events geared toward seniors, community volunteer opportunities, and student organizations also were topics that the student researchers suggested.

Overall Recommendations. In their final reports, the student researchers provided ideas for the future development of COMM4U and Success4U. They based their recommendations on their experiences as students, their observations of the play testers, and their knowledge of gamification. Overall, students enthusiastically supported the project, noting they would have found it beneficial if something like COMM4U or Success4U were available to them when they started at the university.

First, the student researchers agreed that the platform *must be developed outside Canvas*. While they like Canvas for their classes, in its current configuration, COMM4U too closely

resembles school work, which makes it seem less fun and engaging. Second, the student

researchers underscored the need to *strike a balance between playfulness and seriousness*. That

is, they cautioned against turning COMM4U and Success4U into a game. Using game elements

to encourage students to complete activities offers a fun way to navigate the intricacies of the

path to graduation. But there are real, and sometimes negative, consequences when students do

not fulfill a university requirement, such as taking the Writing Skills Test. So in that sense, the

student researchers agreed that systems such as COMM4U and Success4U should be thought of

as tools to help students stay in school and graduate on time rather than a game that students play

for its own sake.

Third, the student researchers suggested *integrating both intrinsic and extrinsic*

motivators. As several play testers and our students pointed out, simply learning about all the

information in the quest was rewarding. The play testers liked finding out about topics for their

own benefit as well as being able to share that information with other students. To recognize

students' accomplishments, for instance, their names would be posted on COMM Central, the

department's online homeroom, when they finished a quest. Similarly, badges could be displayed

on a student's profile. In addition, when students complete a level, they might be invited to

monitor and guide discussion in a forum, such as the one for great eats near campus. Extrinsic

motivators would involve points that could be exchanged for gift cards, t-shirts, tickets to

campus events, or similar items.

Fourth, the student researchers suggested adding a *progress bar*. An obvious suggestion,

but not a feature we could build into the current platform. However, developing the program

outside Canvas would allow us to add this feature. Fifth, the student researchers stressed the

importance of making COMM4U and Success4U *visually dynamic*. Photos, maps, videos, drop-

down menus, and other dynamic elements would provide a more interactive look and feel to the

site. For instance, animated feedback, such as sounds and moving images that played when

students finished an activity or leveled up would add a sense of fun to the task.

Discussion: Preparing for the Pilot Study

The play testing and student research reports provided the team with suggestions for

improving the experience of Transfer Quest Part 1. Although we would have liked to implement

all the recommendations, we were constrained by resources, budget, and lack of access to the

university's Canvas platform. For instance, we continued development in Canvas for ease of

student access, but in the future plan to move to a different platform. However, we did make key

changes in Transfer Quest Part 1 to make the activities less tedious and more fun. Figure 1

(Appendix B) provides a comparison between the My Major Plan original version and the

updated version we used for the pilot study.

First, we *provided context* for each activity. We revised the Writing Skills Test activity to

describe the test and its importance. In addition, we linked to resources about the test. Similarly,

for the Library PIN, we explained the various resources available to students once they set up

their PIN. Second, we *integrated images* into the site and the activities. We added a banner and

images to the main page along with images for each module. For example, the Health Magazine

page featured a screen shot of a recent issue of the magazine and My Major Plan included a fun

image that encouraged students to "Create a major plan & chart your path to graduation!" Third,

we *developed videos* for each activity as well as to introduce the site and encourage students to

provide feedback. These short one-minute videos provided basic information about the activity's

topic and explained why it was important for students to complete the task.

Fourth, we added an *introductions and welcomes discussion* area and a *chat* function so students could meet and greet each other. This provided greater interactivity and gave students an incentive to return to the site to find out more about the other students transferring in that semester. Fifth, we added an *announcements page*. This page included a welcome message and instructions for completing the activities. In addition, we will use this feature to post announcements about awards and prizes as well as updated information for the students. Sixth, we gave students access to the *Grades* and *Modules* navigation tabs. While ideally we would have added a progress bar, the Grades page allowed students to view which activities they had completed. The Modules tab allowed them to get to the main list of activities from any page without having to go back to the home page.

Implications

The overall goal of this project is to assist students in adjusting to and successfully navigating university life. COMM4U and Success4U address many of the factors associated with student retention and graduation in a way that is cost-effective and motivates students to actively manage their own university experience. The activities associated with COMM4U—and the larger project Success4U—are designed to keep students in school and on track for a timely graduation. Our play test of Transfer Quest Part 1 suggested the content was on target, but the program needed considerable work in its structure and process. We have completed a major redesign of the site and will implement the pilot test in July 2014. The play test and redesign process provided several insights into the utility of gamification in helping students adjust to university life and succeed in school and beyond.

Achieving the Goal: Retaining and Graduating Students

Based on the play testing and redesign for the pilot project, we cannot establish any link between the project and retention and graduation rates at this point. After formal implementation of the project, we will collect data across departments in multiple years to compare student retention and graduation rates before and after the implementation. Until then, student play testers' self report data provided useful insights into how students responded to the quest. Play testers mentioned that COMM4U—designed for communication studies majors—provided a sense of belonging and caring, a key component of student retention (O'Keeffe, 2013). Even though the play testers found the activities a bit boring and sometimes tedious, they were impressed that faculty had taken the time to create the site. This suggests that systems such as COMM4U and Success4U serve a symbolic purpose in communicating to students that the university wants them to do well and succeed. In addition, specific activities, such as posting their ideas for restaurants near campus, helped them feel a part of the department and university community.

Nuts and Bolts: Designing an Attractive Platform

Although an attractive and enticing site is central to gamification, we were not sure what our students would find engaging. Previous research gave us some clues. In a study of collaborative storytelling websites, Hsu, Chang and Lee (2013) found 10 key aspects of a gamified site accounted for nearly 60% of the site's attractiveness: clear relationship between activities and rewards, unpredictable time pressures, instructions easily learned, opportunities to collaborate, diverse badges, straight-forward instructions, diverse leaderboards, easy to accumulate points, actions fit with situational changes, and creative gifts. The revised Transfer Quest Part 1 addresses several of these areas, including clear instructions, opportunities to collaborate, and a clear relationship between activities and rewards. As we further develop

COMM4U and Success4U, we will incorporate the other aspects of an attractive gamified site into the programs.

For our project, Hsu et al.'s (2013) research also underscores the need not only for a steady stream of user feedback, but also for a student advisory board. Several of the student researchers in the first author's class expressed an interest in serving on such a board. We plan to implement this idea in Fall 2014. The student advisory board will provide guidance in both the content and structure of quests and levels, as well as ideas for intrinsic and extrinsic motivators. In addition, the students will serve as ambassadors in promoting the system and encouraging students to participate.

Incorporating Learning and Game Principles into Gamification

Although Transfer Quest Part 1, COMM4U and Success4U were not envisioned as games, learning and game design forms a foundation in the development of any gamified system (Werbach & Hunter, 2012). Gee (2005) suggests that any effective game designed to enhance learning follow sixteen principles: (1) *identity* – connect the players to the game, (2) *interaction* – players interact with the game and larger environment or world, (3) *producers* – players are *prosumers*, both producing and consuming the game, (4) *risk taking* – minimal consequences for failure allow players to true out new things, (5) *customization* – players can personalize the game experiences, (6) *agency* – players feel a sense of ownership, (7) *well-ordered problems* – players face increasingly complex problems, (8) *challenge and consolidation* – players repeatedly solve a problem type until they skilled at it before moving onto the next one, (9) *"just in time" and "on demand"* – players are given just the amount of information they need when they need it, (10) *situated meaning* – provide context for language used, (11) *pleasantly frustrating* – make the game challenging but doable, (12) *system thinking* – encourage players to think about

relationships among characters and actions, (13) *explore, think laterally, rethink goals* – facilitate wandering and exploring rather than just hurrying to reach the goal, (14) *smart tools and distributed knowledge* – provide opportunities for collaboration and working together to pool skills and information, (15) *cross-functional teams* – encourage players to understand others' roles in the game, and (16) *performance before competence* – design the game so players can perform immediately and then develop competencies as they progress.

We have built in many of these principles into future iterations of COMM4U and Success4U. For instance, students' identities are immediately connected to the gamified system in that the activities are tied to real-world outcomes—students have a personal stake in the system. Students interact with their larger environment in many of the activities, as with setting up an appointment with and advisor in Transfer Quest Part 1. They are prosumers when they post on the Great Eats Near Campus discussion board and welcome other students to the quest. Students can customize their experience when they personalize their settings, such as choosing their picture. As students participate in COMM4U and Success4U, they contribute to the knowledge base, giving them a sense of ownership. The levels are well-ordered, becoming more complex and challenging as students progress through their freshman, sophomore, junior, and senior years. As we further developed COMM4U and Success4U, Gee's (2005, 2008) learning and games principles will continue to drive both content and structure.

Recognizing the Limitations of Games and Gamification

In designing and implementing a writing course based on *World of Warcraft*, Hodgson (2013) found that while the game encouraged student collaboration, it also rewarded quantity over quality. That is, students who produced mediocre work in large quantities earned higher scores—and higher grades—than students who produced higher quality work but in smaller

quantities. Similarly, it is possible for students to finish all the activities in COMM4U or Success4U, but do them poorly and still earn the points or credits for completion. For some activities, poor performance is not detrimental to students' progress toward the degree. But for others, such as applying for graduation, not doing the task well likely will result in negative consequences. In that sense, heeding our student researchers' caution that this is a gamified system and not a game, is essential to sound design. As Hodgson (2013) points out, "we cannot simply view course and game design principles as a one-to-one relationship because courses and games are not the same things" (p. 59). Along the same lines, although game design principles are essential to gamification, we cannot lose sight of our ultimate goal, promoting student retention and graduation.

University administrators often view online platforms as a way to increase capacity and lower costs, as with the MOOC experiments at various universities. Students were charged a reduced fee for the classes and the units counted toward university requirements as any traditional college course would. Unfortunately, the completion rates in the MOOCs were low; universities were forced to rethink the role of MOOCs and similar online learning venues (Rivard, 2013). Similarly, administrators likely will view COMM4U and Success4U as systems that will allow fewer advisors to service more students. For instance, Mathis (2010) suggests that a video game designed to guide high school students through the college admissions process could stretch counseling resources, especially for underserved student populations. While such a system might help students better understand what they need to do to apply to college, the need for well-trained counselors will not diminish. Instead, counselors will have more time to talk with high school students about their future plans, rather than reviewing the mind-numbing administrative details of the college admissions process. Similarly, we envision COMM4U and

Success4U as supplementing rather than replacing academic advisors. Currently, academic

advising sessions concentrate on making sure students are meeting all the requirements for their

degrees and often involve answering the same basic questions countless times each day. A

gamified system such as COMM4U or Success4U frees advisors from these mundane tasks and

allows them to address students' current concerns, unique issues, and future plans. These are the

kinds of advising session conversations that promote collaborative advising, which student prefer

(Christian & Sprinkle, 2013), and contribute to student retention and graduation (Kolenovic et al.,

2013). Moreover, engaging students in the management of their own success in a fun way should

reduce the need for top-down intrusive advising that has become popular on community college

and university campuses. Intrusive advising, also called advising intervention, involves

mandatory in person or online meetings with advisors and often is paired with prescripted course

schedules, compulsory tutoring, and required workshops and similar activities (Jones & Hansen,

2014; Michael, Dickson, Ryan, & Koefer, 2010). For example, the Pathways to Success Program

includes these components for freshmen: (1) clear guidelines about university policies and

procedures, with details about noncompliance; (2) mandatory orientation, (3) mandatory first-

year-experience course, (4) intrusive advising, and (5) limitations on class schedules, such as a

cap on units taken and mandatory breaks between classes (Fowler & Boylan, 2010). Interestingly,

a recent longitudinal study with college students on probation found that intrusive advising

techniques did not improve retention rates (Schwebel, Walburn, Klyce, & Jerrolds, 2012).

Conclusion

Gamifying the process through programs such as COMM4U and Success4U encourages

students to actively engage in charting their own path through the university and beyond. As one

of the play testers said, "I think it's [Transfer Quest Part 1] great for people [who] just started at

[university name]. I wish I'd had it when I came. I could've been done by now." Yet most campus programs designed to help students adjust to and navigate their way through college life involve presenting an avalanche of facts, as with speakers at orientation and counselors in advising sessions. University staff and faculty talk; students passively listen. Our project is an attempt to move away from the traditional modes of student advising and to innovate the current program to be student-centered, self-paced, and accessible 24/7.

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Appendix A

Play Testing Protocol

Welcome and Purpose

Thank you so much for meeting with me today. I wanted to give you a little information about what you will be looking at and give you time to ask any questions you might have before we get started.

Today we are asking you to serve as an evaluator of a website designed to help students succeed at [name of university]. This section of the site is called Transfer Student Quest Part 1. It is designed for transfer students who are just starting in the communication studies major at [name of university]. However, to test out the site, you don't need to be a transfer student or a COMM major. Our goal is to get your feedback on the site.

I am here to record your reactions and comments on the site you will view. During this session, I would like you to think aloud as you work to complete the tasks. I can't offer any suggestions or hints, but from time to time, I may ask you to clarify what you have said or ask you for information on what you were looking for or what you expect to have happen. What questions do you have so far?

Let me explain your role.

- Today I am going to be asking you to accomplish several tasks on the site and tell me about your experiences as you do them.
- There are no right or wrong answers. If you have any questions, comments or areas of confusion while you are working, please let me know.
- If you ever feel that you are lost or cannot complete a task with the information that you have been given, please let me know. I will ask you what you might do in a real-world setting and then either put you on the right track or move you on to the next scenario.
- I would ask that you to try work through the tasks based on what you see on screen.
- Your name will not be associated or reported with data or findings from this evaluation.
- I may ask you other questions as we go and we will have wrap up questions at the end.

What questions so you have before we begin?

Demographic questions

I will start with some basic questions about you.

1. What is your class standing? (F, So, Jr, Sr)
2. Are you a transfer student? (Y/N)
3. What is your major? (If not a COMM major ask: Are you a COMM minor? Y/N)

Canvas questions

Now I'm going to ask you some questions about the [university's] learning platform, Canvas.

1. How familiar are you with Canvas?
2. How do you usually access Canvas?
3. What are your impressions of Canvas?

Now we can get started with the play testing. Remember, I'm interested in your experience with

the site. There are not right or wrong answers.

[log into the play testing site]

[for each activity or task, ask these questions]

1. What was the purpose of this section? How clear was the intent or goal of the task to you?
2. What would make it more interesting or fun?
3. What did this section did not address that you expected or that you believe would be helpful?

[after the play tester has completed all the tasks, ask these questions]

1. Overall, how would you evaluate the site?
2. Overall, how would you evaluate the tasks you were asked to complete?
3. What did you like about completing the tasks?
4. What did you dislike about completing the tasks?
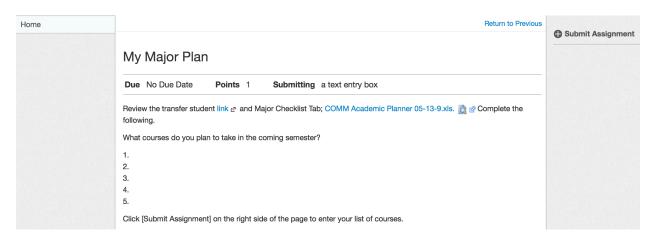5. What recommendations do you have for improving the site?

Closing

Thank you for taking the time to meet with me and test out this part of COMM4U. I appreciate

you evaluating the site for us. As I mentioned before, your responses are anonymous; your name
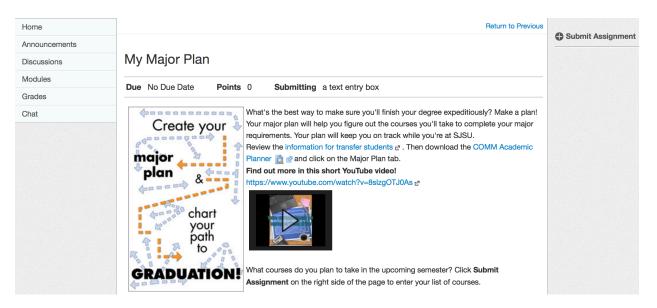
will not be connected to the results my team will report to the class.

Appendix B

Figure 1, Comparison of My Major Plan Original and Updated Versions

My Major Plan Activity Used for Play Testing

My Major Plan Activity Used for Pilot Study with Transfer Students