

# **The Role of Quantitative Assessment in *Just Press Play*: A Pervasive Game Addressing College Retention Issues and the Overall College Experience**

Shannon Harris, Ryan Martinez, Crystle Martin, University of Wisconsin-Madison  
Andrew Phelps, Elizabeth Lawley, Rochester Institute of Technology  
Kurt Squire, University of Wisconsin-Madison

**Abstract:** American Colleges and Universities continually face retention issues, especially during students' freshman years; meanwhile, students often face less than ideal experiences transitioning to college life. Society at large endures the costs of low college freshman retention rates. *Just press play (JPP)*, a project being implemented at the Rochester Institute of Technology's (RIT) Interactive Games and Media School, aims to address these problems head-on through pervasive gaming, in which students are presented with opportunities to become integrated into the community, receive support, excel academically, and achieve a solid social, personal, and academic balance, all while having fun gaming. Research efforts focus on addressing how well the program is working, possible improvements, the nature and quality of the relationships between JPP, students, faculty, and the RIT community, and determining associations among variables that present opportunities to strengthen JPP's impact. Quantitative analyses focus on the JPP experience in regards to impact on student life and academics in addition to future considerations.

## **The College Freshman Retention Dilemma**

American colleges and universities graduate students from four-year degree programs at a rate approaching only about fifty percent of students admitted, a figure reported out as recently as August 2011 (Schneider & Yin, 2011). This is an alarming figure considering the ease of access and availability many students encounter through online and technologically enhanced courses, which often include Web-based support, discussion board forums, and plenty of links to additional resources for help. A (2011) report published by the American Institutes for Research calculated calamitous personal and national losses to total roughly \$158 billion forfeited in personal income and \$32 billion vanquished in federal income tax payments for one cohort of only freshman college students in just one year. These figures don't account for the devastating impact of state tax losses or for students outside this single, small cohort. It is noteworthy to mention that these figures were calculated during the recent national recession and account for high unemployment rates, which are often minimized in populations of those possessing undergraduate bachelor's degrees (Schneider & Yin, 2011). Furthermore, about half of college freshman leave their initial institution before beginning their sophomore year or drop out completely (Adams, 2011), illustrating the gravity of freshman retention efforts in the overall crusade to graduate educated students ready to enter the workforce.

Motivation, adjustment, and dispositional and academic optimism have been linked to freshman retention rates. Social, emotional, and academic adjustments are compelling experiences that deserve more attention in the higher education landscape (Nes, Evans, & Segerstrom, 2009). Meanwhile, while many colleges and universities have amped up their attempts toward retaining freshman students by implementing programs such as mandated freshman orientation courses, utilizing academic counselors to text students reminders of quizzes and exams, guiding students through the financial aid process, and providing counseling support to students, few programs have proven to be durable and reliable enough to deliver solid results (Adams, 2011).

## ***Just press play*: a Solution to College Retention Problems**

This year, a ground-breaking initiative, *Just press play (JPP)*, funded by Microsoft and launching at the Rochester Institute of Technology's (RIT) School of Interactive Games and Media (IGM), will make a formidable, focused, and solidly-planned step toward addressing college freshman retention rates by implementing a project that specifically aims to tackle the difficulties freshman have when adjusting to their new college lives, socially, academically, and emotionally. Although RIT's School of IGM remarkably has a retention rate surpassing the national average for related programs, about 11% of RIT's IGM freshman cohort on average fail to return for a sophomore year of education in the program (<http://games.rit.edu/~thinkplay/a-vision-of-play>, 2011). In addition to the *JPP* program striving to confront freshman retention issues, administrators and faculty members at RIT

acknowledge that progressing into the games and computer industries can be troublesome even for students who *do* graduate from the program, and are confident that *JPP* will aid students in adopting healthy social, emotional, and work-related habits that liaise expertly with the professional landscape.

In the Interactive Games and Media [School], we have identified a series of “choke points” for our students; these are points where they must make significant changes in their understanding of the field and the quality of their work. It a series of steps. It is a process of growth. In game terms, it is “leveling.” [*JPP*] aims to produce a proof-of-concept system that encourages student development through achievements and formative feedback. It conceives of the student experience as mirroring what Campbell (2003) has described as “the hero’s journey.” In that journey, not every element of the adventure is directly or immediately relevant to the overarching goal, or at least not in a way that is immediately evident to the protagonist. This is also true of the student experience; students struggle at times to understand how a given assignment, course, experience, or action relates to their educational and career goals. As educators, we strive to connect the dots between their curricular work and their professional goals. Faculty are their mentors in this journey; the Gandalfs to their Frodos. An achievement-based game system can encourage students to think of the “necessary obstacles” in their path as part of a coherent narrative of their learning and professional development. [*JPP* aims] to help our “student-heroes” determine what tools they need in order to successfully navigate those obstacles (their “academic dragons”) along the way. (*Just Press Play*, 2011)

Designers at the Rochester Institute of Technology’s IGM School have created a widespread game that bridges students’ academic, professional, and social lives using the *JPP* platform. Students in the Game Design and Development and New Media Interactive Development programs will have the opportunity to play through different quests en route to acquiring badges and achievements that will afford them chances to adjust to the college lifestyle, prepare for their future career goals, make new friends, find and network with people who have similar interests, and perform well academically, all while sanctioning feelings of growth, creativity, and ability in a supportive community. “[Thinking] of the “choke points” described [above] as the “level bosses” in our game, the goal of this system will be to allow students to better understand what skills they need in order to successfully defeat those bosses, and to encourage their engagement in activities that will build those skills” (*Just Press Play*, 2011). Furthermore, *JPP* will allow students to display their various talents and skills to friends, family, colleagues, and even to potential employers. In fact, students themselves will be encouraged to develop quests that they feel are inspiring and worthwhile (Lawley & Phelps, 2011).

As feeling socially isolated in a new place can be a challenging adjustment, *JPP* will focus heavily on collaborative and often fun activities, such as giving students the option to complete a quest that involves leaving campus to have dinner with a group of RIT friends, an activity faculty members at RIT have noticed happens rarely due to the nature and location of the campus. Other quests may entail activities like participating in a study group for the first programming course in a computer science sequence, going to say hello to a faculty member and locating a hidden object in their office (an undertaking freshman students are particularly thought to be shy about), visiting the career counseling office, stargazing with friends one night, or becoming involved with a sport at the recreation center. *JPP* seeks to afford opportunities for achieving balance in students’ social, personal, and academic lives, while making them feel as though they belong to a supportive community (Lawley & Phelps, 2011).

First and foremost, however, *JPP* does not aspire toward “pointsifying” the college experience in a cheap, commercial fashion. By evoking intrinsic rather than extrinsic rewards and focusing on valuable game design, *JPP* targets the exact principles that oppose the notion of pointsification, which inappropriately tries to capitalize on the mere and sometimes groundless presentation of points, badges, and scores as rewards in and of themselves. In the true sense of the ideas captured by the idea of successful *gamification* as being an experience inseparable from the spirit of a well-developed and fun game (McGonigal, 2011), “We intend for this game to take place online and in physical space. Students would play it in the classroom and the dining room, in shared spaces and alone in the confines of their head, on campus and off campus. The game will invite players to activate the spaces around them, encourage their interaction, and reward their engagement with the learning process...

The game will infuse their day-to-day experience with a real sense of play that reflects the playfulness of learning at its best, the (hero's) journey it can be" (*Just Press Play*, 2011).

*JPP* will be embedded in a wide array of RIT systems, including the RIT courseware system, library databases, co-op system site, and more. Hidden content (much like finding an extra, secret level in one's favorite video game) will be unveiled to students playing *JPP*, at which point they can decide whether or not to complete a discovered quest (Lawley & Phelps, 2011). Undoubtedly, this could become a game in and of itself and stimulate students to collaborate regarding their experiences with *JPP* with other students, who may want information about where hidden quests might be found. A parallel image of children leveling through a traditional video game, talking about it to their friends, visiting sites where information can be found, and most importantly having *fun* while being challenged is brought to mind.

From a technical standpoint, *JPP* will utilize card readers at various locations around campus that can essentially check students into a location where a quest activity may be. Privacy issues are a substantial consideration, and will be monitored carefully. Students will clearly know what type of information is recorded and to whom the information may be communicated to. Careful data management will need to reduce the likelihood of a security breach in addition to being minimally prying.

### **The Role of Quantitative Research in the Overall *JPP* Assessment Plan**

Due to the sensitive nature of the project, unbiased University of Wisconsin-Madison researchers will implement a substantial assessment and review that involves design recommendations for improving *JPP*. As part of a two-fold initiative involving both extensive qualitative and quantitative research goals, a mixed methods approach will be used to assess *JPP*. Quantitative research questions include addressing how well the program is working, how it can be improved, the nature and quality of the relationships between *JPP*, students, faculty, and the RIT community, and determining associations among variables that present opportunities to strengthen *JPP*'s impact.

Survey data and research conducted on data gathered through *JPP*'s infrastructure will be analyzed extensively. Both students and faculty members have participated, as faculty members' involvement with the project is critical for success, although the main quantitative analyses will focus on student data.

Variables of particular interest include the nature and quantity of badges/achievements awarded, the nature and quantity of quests undertaken but not completed, course enrollment and course-load information, participants' beliefs and attitudes about various aspects of *JPP* and RIT in general, students' academic and professional goals, and overall reported academic and community-related successes.

Determining which variables have a predictive and causal relationship in measuring the potential successes and failures of the program is critical and can lead to important modifications in the design of *JPP*. Determining whether or not there are significant differences in the outcomes among different groups while controlling for covariates in the model represent a gold standard in means-based testing and often provide key indicators that demonstrate strong differences among groups of data.

Finally, significant negative and positive correlations will be investigated at a more basic level, and relevant basic descriptive statistics and visuals will be divulged in order to provide important background information and a big-picture view of the research. Typical power and effect sizes will be reported out for all communicated and relevant findings.

### **Impact and Future Research Directions**

Benefits to participants in the *JPP* study are twofold: first, interviews with participants can serve as a vehicle for greater cognizance and reflection on the game on behalf of the individual participant, himself or herself. Secondly, participation may provide participants the opportunity to reflect on their uses of technology and to become more aware of the wide range of possible technology-related knowledge and skills that they already possess, thus potentially allowing them to view their game-related activities as academically beneficial and life-enhancing.

The results of the overall project can be of benefit to participants on a larger scale in recognizing the intellectual work involved with their participation with social media and digital technology. This could also help other universities who are thinking about implementing similar programs and allow them to build on the initial results of JPP.

Acknowledging that an initiative like *JPP* may have pervasive relevance to diverse educational and commercial settings, the goal of this research is to chronicle and divulge the design and developmental processes alongside research findings and *JPP*'s ultimate impact on the community. Determining best practices would prove useful to a host of different establishments.

Data collection and analysis is slated to conclude in June of 2012, and full research findings will be reported out and presented at this time. Follow-up measures at the end of the 2011-2012 RIT freshman academic year, as well as subsequent years present an interesting opportunity for research on longer-term impacts of *JPP*.

## References

- Adams, C. J. (2011). Colleges try to unlock secrets to prevent freshman dropouts. *Education Week*, 31(4), 3.
- Campbell, J. (2003). *The hero's journey: Joseph Campbell on his Life and work* (3rd ed.). Oakland, California: New World Library.
- Just Press Play. (2011). *Unlocking game design principles to the undergraduate student experience*. Retrieved January 1, 2012, from <https://play.rit.edu/soon/vision>.
- Lawley, E. and Phelps, A. (2011). *Just press play: Games+Learning+Society brown bag lecture series*. University of Wisconsin-Madison. Dec. 6, 2011.
- McGonigal, J. (2011). *Reality is broken: Why games make us better and how they can change the world*. New York: Penguin Press.
- Schneider, M., & Yin, L. (2011). The high cost of low graduation rates: How much does dropping out of college really cost? *American Institutes for Research*, 16.
- Solberg Nes, L., Evans, D. R., & Segerstrom, S. C. (2009). Optimism and college retention: Mediation by motivation, performance, and adjustment. *Journal of Applied Social Psychology*, 39(8), 1887-1912.