The Use of Gamification Mechanisms in Teaching Metacognition within Sport Management
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Poster

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Academics are often challenged with the issue of getting students to engage in the learning process. The more common trend of teaching to a rubric or exam has created a student that is more inclined to be taught to, rather than be part of the learning experience. Technologies like YouTube, google, and Khan Academy provide students with easily accessed tutorials that are designed specifically to provide answers, yet lack in depth and critical thought. Students either lack or have a difficult time engaging or learning metacognition, the action of thinking about one's thinking (Flavell, 1976). The ability to apply and understand metacognition allows an individual to become consciously aware of themselves as problem solvers, enabling them to critically think through problems. Being able to use metacognition techniques decreases one’s dependency on another to get to an answer to a problem. Through an ability to monitor, plan, and control one's mental process a student can transition from being a passive learner to a more proactive learner. In an industry that is ever changing and fronted with issues that have dire financial or ethical consequences, the use and teaching of metacognition within sport management curricula is critical to the future success of the sport industry.

Gamification is the incorporation of game-like elements in non-game contexts or environments (Deterding, Khaled, Nacke, & Dixon, 2011). Specifically, meaningful gamification integrates layers of play into classroom instruction to help students connect with information in a way that promotes long-term learning (Nicholson, 2012). The goal of meaningful gamification is to engage users into a deeper level of thinking promoting a richer connection with real-world contexts, which can create long-term change and foster an intrinsically motivated community.

Research on gamification in the academic setting is rather new. However, the use of gamification tactics in education and learning contexts is becoming more prevalent (Codis & Ravid, 2014; Iosup & Epema, 2008; Sheldon, 2013; Stansbury & Earnest, 2017). Applications to history, computer business, and psychology have been documented to support a play-like learning environment emphasizing extrinsic motivation of students (Malone, 1981; Deterding, 2012; Nicholson, 2012 & 2013; Sheldon, 2012). Within the business context research suggests educators can more fully engage a student's imagination through a focus on narrative roles (i.e. support staff, managers, consumers), similar to those used within a game (Gee, 2007; McGonigal, 2011). In summary, the use of gamification mechanisms within an academic course can develop a deeper level of thinking, promoting a connection with industry contexts that fosters a student’s ability to think within themselves on how to learn and process through a confronted issue requiring an actionable decision.

The methodology of the present study consisted of four elements. First, to establish a narrative based on game-like elements within the context of the course. For this, students were randomly assigned into groups. These groups acted as organizations for the duration of the semester. Each group had to create a mission, roles, identification of skills, semester goals, and an organizational plan for achieving goals. Groups created organizational names, assigned organizational titles to group members, and presented an organizational contract dictating how the individuals within the organization were to contribute to the overall success of the organization.

Second, was the development of gamification tactics in an Introduction to Sport Management course. All traditional terminologies for course syllabi were abandoned for more organizational terms:

Points – Market Shares
Exams – Organizational Expansions
Quizzes – Intel Missions
Extra Credit – Dividends

Third, the adoption of the Metacognition Awareness Inventory (MIA), a 52-item instrument used to measure both knowledge about cognition and regulation of cognition. The knowledge of cognition is broken into three knowledge...
types: a) Declarative Knowledge (knowing factual information), b) Procedural Knowledge (knowing how to do something), and c) Conditional Knowledge (knowing when and why to do something). Regulation of cognition assesses: a) planning, b) information management strategies, c) comprehension monitoring, d) debugging strategies, and e) evaluation. Items from the MIA are scored with a simple true or false. Scores for each item are attributed to each measurement component. This provides an assessment of the subject’s knowledge and regulation of cognition (Schraw & Dennis, 1994). The administration of the MIA was conducted both pre and post of each assessment. In addition, student will be provided room to describe their approaches and strategies for learning both individually and within their group. The assessment of the MIA will be done by examining correlations of the MIA components to both grade scores and gamification elements. Pre and post analysis will also be examined looking for common themes in student strategies for improving metacognition and grade scores.

Finally, student’s perceived experience, learning, and impact of teaching techniques were measured. Perceived experience measured seven areas: a) enjoyable, b) motivating, c) engaging, d) fun, e) boring, f) challenging, and g) relevant. Perceived learning measured seven areas: a) understanding of content, b) confidence, c) involvement, d) reinforcement, e) motivation, f) ability to reason, and g) application of content. Impact of teaching techniques measured the degree to which each gamification element aided in learning. All items were measured on a 5-point Likert-type scale. Student perceptions were taken at three different times in the semester, beginning, middle, and end. ANOVA procedures will be used to assess differences in beginning, middle and end perceptions of experience, learning, and impact of teaching techniques.

Implications on the use of gamification elements as a mechanism for teaching metacognition within the context of a sport management course will be discussed. A focus will be made on specific differences of the gamification elements and the correlation with knowledge types and regulation of cognition. Finally, suggestion for future research on the benefits of metacognition and the implementation of metacognition within the academic context will be discussed.