Game Elements Facilitate Motivation in 6C Ways

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Submitted for EDET 709 - J50/061

April 14, 2015

Abstract

Motivation emerges through task interaction and task elements, which include choice, challenge, challenge, collaboration, constructing meaning, and consequences. Tasks that allow learners to make choices, control the task as well as their learning, and create meaning from the task have the biggest effect on student motivation. These 6Cs of motivation are present in games. Educators can use game elements that foster and facilitate these 6Cs to develop student motivation. Two cases investigate the role of task and task elements on student motivation, and whether it's a reading task or physical activity, student motivation develops when these 6Cs are present.

Keywords: motivation, 6Cs, choice, challenge, control, collaboration, constructing meaning, consequences, game elements

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Motivation facilitates learning, working, and a vast number of activities. Unfortunately, many of these environments lack motivational drivers that encourage quality learning, increased productivity, and higher levels of enjoyment. Without motivation and interest, students become disengaged, which we see time-and-time again in traditional classrooms (Anderman & Maehr, 1994; Maehr & Meyer, 1997; Turner & Paris, 1995). Businesses lose thousands, millions, and even billions of dollars in productivity when workers become unmotivated to work (Blacksmith & Harter, 2011). This apathy can leech into other areas of a person's life, like family interactions and community events, which undermines her/his enjoyment, involvement with a current activity or task, and quality of life.

As educators, colleagues, kin, and humans, it is our responsibility to provide optimal life experiences that engage and motivate people in everything that we do. Fortunately, a number of intellectuals have been working to understand human motivation and how it can be applied in various environments (Ames, 1992; Brown, McCord, Matusovich, & Kajfez, 2014; Deci, Vallerand, Pelletier, & Ryan, 1991; Maehr & Meyer, 1997; Schiefele, 1991; Turner & Paris, 1995; Urban & Maehr, 1995, Urdan & Karabenick, 2010; Young, 1997). One theory in particular—Turner and Paris's 6Cs of Motivation—highlights six specific components that should be present in tasks to foster motivation (Wang & Han, 2001). By no coincidence, these six components can naturally emerge in games, and this relationship suggests that instructors, managers, and other individuals can apply and use game elements to increase peoples' motivation in a variety of environments.

The 6Cs of Motivation theory indicate that tasks and task elements play a larger role of motivating learners than what students 'bring to the table' (Turner & Paris, 1995). In other words, daily tasks promote and develop motivation. For example, open-ended tasks facilitate and foster motivation more than routine activities and repetitive exercises. Turner and Paris identified 6 major components, i.e. 6Cs, within open-ended tasks that engage and motivate learners: choices, challenge, control, collaboration, constructing comprehension / meaning, and consequences. Several researchers and motivational theories recognize that these elements promote motivation (Barg, Ruparathna, Mendis, & Hewage, 2014; Powell, McIntyre, & Rightmyer, 2006; Sun, 2013). For example, The Taxonomy of Intrinsic Motivation for Learning, which draws upon Malone's Theory of Intrinsically Motivating Instruction and Lepper's Instructional Design Principles for Intrinsic Motivation, identifies several similar elements that facilitate motivation: challenge, control, contextualization, i.e. information that learners construct meaning and purpose from, cooperation, and recognition (Kapp, 2012). Additionally, these 6Cs emerge through games, and instructors can incorporate these elements into their classrooms' tasks and activities.

This paper discusses the theoretical drivers that foster and facilitate motivation. It presents two cases that look at motivation in elementary classrooms. The first case investigates a variety of classroom tasks, the degree that the 6Cs are present in each task, and the level of motivation and engagement with each task. The second case investigates the affect exergames have on physical activity and situational interest, i.e. motivation. Finally, this paper recommends elements that can be added to various environments in order to increase choice, challenge, control, collaboration, constructing meaning, consequences, and motivation.

Theory

Tasks affect a learner's approach, engagement, understanding of an activity, and self-regulation while learning. Tasks that account for these interactions foster and facilitate motivation. Many rote, behavioral activities, i.e. exercises to complete, are done quickly and correctly, but they overlook several aspects of the learner's relationship with the task (Turner & Paris, 1995). In other words, these routine exercises limit a learner's approach, engagement, understanding, and self-regulation while learning. On the other hand, open and collaborative activities, i.e. 'complex' problems with multiple solutions, allow learners to make choices, control the activity as well as their learning, and create meaning from the activity (Turner & Paris, 1995). Under the 6Cs of Motivation lens, daily learning tasks have the biggest affect on student motivation. As Turner & Paris indicate, the most successful strategies that increase motivation involve opportunities to learn in authentic ways and for personal purposes; they convey individual enjoyment, social collaboration, and the active construction of meaning and knowledge by the individual or through a group; and these strategies develop metacognitive skills focused on the task, which can disseminate to other tasks and experiences.

Choices

When learners make choices, they personally select activities that are interesting, appropriate, significant, and purposeful (Turner & Paris, 1995). A learner's interests and abilities guide her/him to choose amongst tasks that s/he enjoys, completes with easy, does because no one has done it before, develops mastery, or so s/he can venture down new and unknown roads. Whatever her/his choice, a learner will attribute personal value to the task, and learners that choose a task to interact and engage in will typically expend more effort and energy—mentally,

physically, and emotionally—to understand that task (Schiefele, 1991). Choice encourages personal responsibility, and through open-tasks, learners set their own goals and figure out how they will obtain those goals. As students make choices and set goals, they plan and regulate their own learning, which helps develop the breadth and depth of their learning strategies.

Challenge

Quality learning requires challenge. When learners can modify the difficulty of tasks to increase their interest, they're more likely to make new discoveries and reorganize their understanding (Turner & Paris, 1995). If the task is too easy, learners become bored, and they exert little-to-no energy towards the task. If the task is too hard, learners become frustrated, and they'll eventually give up on the task. However, if the task is moderately challenging, learners can operate at their optimal level and flow, i.e. work-hard and actively experience a task that is difficult and worthwhile (Csikszentmihalyi, 1990). These peak experiences occur when the learner understands what s/he is doing and knows how to improve. Under this lens, learners see errors as feedback rather than failure. In other words, a challenging environment is going to lead to mistakes and problems, and an error on a task provides the learner with information about her/his thoughts and progress. The learner can re-diagnose the task with this new information, and s/he can try again, make new discoveries, and reorganize her/his learning strategies to account for how and why s/he erred (Clifford, 1991). Challenging tasks allow learners to plan, organize, draw upon other resources, and self-monitor their progress (Turner & Paris, 1995).

Control

Learners need to be able to control the task and their own learning. When instructors share control over the learning experience, learners are more adapt at making their own plans,

monitoring their progress, adjust their strategies and actions, and evaluating their execution, which takes them back to making plans for their next action (Turner & Paris, 1995). Sharing control transforms instruction from a pressured performance into information that learners can use (Deci, Vallerand, Pelletier, & Rya, 1991). Learners can select tasks and strategies to reach goals and intentions while avoiding distractions. Self-direction and control leads to increases in interest, empowerment, independence, versatility, active involvement in the task, and awareness of one's learning process (Turner & Paris, 1995).

Collaborate

When learners share expertise, ideas, and opinions, they collaborate. An abled companion helps guide, support, and challenge another's understanding of the information and task, i.e. modeling, coaching, and apprenticeships (Turner & Paris, 1995). Likewise, a less-informed partner challenges a knowledgeable learner's understanding by asking questions and for clarifications, which requires her/him to recall and solidify that information or reorganize it. Collaboration encourages help seeking, help giving, and discussion about ideas and strategies. As Ames states, collaboration incorporates different perspectives (1992). It stimulates curiosity and interest. Collaboration boosts self-confidence when the learner knows 'it can be done.' Collaboration promotes engagement with others, increases effort and persistence, and fosters effortful learning. When learners collaborate instead of compete, they spend less time and energy proving their ability or out-performing others, and they spend more time engaging in the activity.

Construct Meaning

Tasks should require learners to construct meaning. When learners have to make sense of a task and their performance on that task, they develop purpose, value, and utility around that

task and themselves (Turner & Paris, 1995). In other words, learners that attempt to explain 'why' they learn a task create reasons and explanations for their actions, which make them think about the task. This meta-cognitive activity encourages learners to reflect on their thoughts and actions, which emanates into other aspects of their learning like planning and evaluation. Instructors should introduce, model, and provide opportunities to use multiple strategies on a task. As learners work through multiple examples and receive guided assistance, they develop comprehension skills and strategies where they get to attribute value and usefulness to the information they learn. As learners construct their own meaning in a task, they associate that meaning with the information they learn, and they will re-visit that meaning when they recall and use that information again.

Consequences

Finally, tasks need consequences. When tasks have goals and outcomes for reaching those goals, they promote feelings of competence, confidence, responsibility, ownership, self-regulation, and efficacy (Turner & Paris, 1995). The key here is plurality: goals, outcomes, consequences. These tasks need to provide more than one correct option so learners can value a range of reasoning. For example, an option might be chosen because it inspires purpose, uses good tactics, illustrates the learner trying to do her or his best, and so on. With multiple goals and multiple ways of obtaining those goals, instructors and learners can assess the effort expended, enjoyment obtained, and meaningfulness attributed to the activity rather than just evaluate a single outcome. This requires a constructive approach to failure, which leads to adaptive strategies, increased persistence, greater task interest, and increased task performance (Clifford, 1991; Turner & Paris, 1995). A constructive approach to failure provides learners with

information about needed improvement, and when learners view error as a means to learning, they are more likely to take responsibility for tasks, task performance, and persist through the task.

Each of these 6Cs of motivation—choices, challenge, control, collaboration, constructing meaning, and consequences—can be found and connected to elements and factors in other motivational theories, such as Self-Determination Theory's competence and relatedness with the 6Cs of Motivation's challenge and collaboration (Deci, Vallerand, Pelletier, & Rya, 1991; Kapp, 2012). While the terminology is important, the most important aspect of facilitating motivation is the task and elements within the task. Motivation is heavily influenced by the task and how the instructor conducts the task. Through their inherent elements, games serve as an excellent motivational tool. All games—board games, card games, dice games, sports games, video games—have the capacity to give choices, challenge learners, provide control, encourage collaboration, construct meaning, and signify consequences. Instructors and gamers can identify these motivational elements and incorporate them into various settings.

Cases

Motivation facilitates almost every environment people engage in—family, work, school, and extracurriculars. After looking at a couple environments—specifically elementary school classrooms—it is clear that behavior and motivation go hand-in-hand with one's task. The following cases illustrate how 'appropriate' instructional tasks facilitate motivation, and how those tasks mirror game elements, which instructors can incorporate into their respective environments. The first elementary case study highlights how tasks play a pivotal role in facilitating motivation. The second elementary case study shows that even when a game is being

used to facilitate motivation, if the correction motivational elements, i.e. the 6Cs, are misused or not present, then the game misses the motivational mark.

Reading Instruction and Student Motivation

In their 2006 study, Powell, McIntyre, and Rightmyer investigated a range of classroom activities for elementary students. Their goal: to identify why students got off-task and what characteristics within the activities motivated students to stay on-task. After conducting a series of observations and interviews, they analyzed classroom tasks for choice, challenge, control, collaboration, meaning construction, and consequences. They found that tasks that contained few-to-none of these features, i.e. 'closed' tasks, reported high degrees of off-task behavior. For example, only one task allowed for student choice, and three tasks provided students with control. Their recommendation: focus on how skills are taught and provide tasks that provide students with choice, appropriate challenge, control, peer collaboration, meaning construction, positive consequences, and purpose as well as involve real-world experiences, stimulate curiosity, and teach within meaningful contexts, i.e. relevant and applicable learning.

Unfortunately, the researchers don't expand on strategies to increase the 6Cs. They highlight activities within tasks that promote these motivational drivers, but they stop short on offering additional strategies. Through their own literature search, they point out that high student engagement derives from effective teaching, and cognitive engagement, i.e. students' intrinsic motivation for engaging in tasks, which manifests through a variety of factors such as a student's willingness, persistence, propensity, and immersion in the task(s). When incorporated with the task, the 6Cs of motivation facilitate student willingness, immersion, and engagement (Turner & Paris, 1995). Within their literacy activities, instructors could incorporate scaffolded

reading activities or levels that modulate the degree of challenge readers face, which in turn would allow them to work at their full capacity. Likewise, instructors could increase learner control by creating several reading adventures that present the student with a variety of options and require different reading strategies. Engagement requires activity, and tasks that required students to be active revealed higher gains in student learning over passive tasks (Powell, 2006). Factors that facilitated active tasks include challenging tasks, peer collaboration, student choice, and self-regulation, i.e. elements of the 6Cs of motivation. One way to increase confidence and modulate challenge would require teachers to present errors as feedback rather than failure. As students read, they could receive positive feedback while reading correctly, and when they mess up, the instructor would remove the positive feedback rather than supply negative feedback. This would be the equivalent of receiving a lot of points for correct actions and only a few points for incorrect actions instead of losing points.

The Impact of Exergames on Student Motivation

Similarly, Sun's 2013 study investigates the impact of exergames on physical activity and motivation in elementary school students. The results reveal an increase in physical activity but a dramatic decrease in situational interest, i.e. motivation. After conducting a literature review, the researcher identifies several motivational aspects and factors of exergames, and Sun references a pseudo-6C study by Sheen and Katz that posits six different components that motivate children in PE exergaming: control, challenge, curiosity, creativity, constant feedback, and competition. It is important to note that these 6 components differ from Turner & Paris's 6Cs of motivation; however, in accordance with other motivational theories, e.g. The Taxonomy of Intrinsic Motivations for Learning, these components facilitate motivation in games (Kapp, 2012).

Through a variety of exergames, the researcher measured physical and metabolic changes as well as psychological, situational interest.

A decrease in student motivation is illustrated by student reports, which note significant drops in challenge and exploration. In other words, the variety and type of exergames did not provide players with enough challenge and exploration over the course of the study. As well, Sun notes that the selected games limit autonomy and individual control. However, subjects reported consistent attention and instant enjoyment over the course of the study. Other than that, the researcher does not discuss any more motivational factors, such as collaboration and consequences. Either these games did provide a variety of motivational components that weren't successful, i.e. Sheen and Katz's pseudo-6Cs, or they didn't incorporate enough effective motivational components, i.e. Turner and Paris's 6Cs. Sun notes that exergames should provide more opportunities to explore and more levels of challenge, and physical educators should challenge students physically and cognitively. However, researchers need to go further by identifying and studying other motivational components that influence student motivation, such as consequences that inspire purpose to physically exercise or collaboration with classmates to boost self-confidence. Even when instructors use games in their classrooms, they have to value and focus on certain elements within the game, i.e. the 6Cs of motivation, for the instruction to be motivating.

Recommendations

For instructors and managers that are looking to motivate their learners and workers, the key lies in daily tasks. "Open-ended tasks are more likely to provide appropriate challenges, genuine choices, some student control over learning, opportunities to collaborate with others, and

to construct meaning" (Turner & Paris, 1995, p. 671). As with the first case study, students continuously got off-task because the tasks lacked choice, challenge, control, collaboration, the ability to construct meaning, and consequence. The 6Cs of Motivation theory supports the idea that open-ended tasks facilitate and foster motivation more than repetitive activities and specific exercises. The beauty of open-ended tasks is that there is no single correct answer, which allows students to create their own goals and make their own choices (Wang & Han, 2001).

Through open-ended tasks, instructors, managers, and individuals can guide students, workers, and other people to make appropriate choices while setting up short- and long-term goals. As Wang and Han indicate, open-ended tasks allow learners plan and evaluate their projects, collaborate with peers or colleagues, construct personal meaning, build confidence, and display their work to others (2001). As motivators look to implement the 6Cs of motivation into their respective setting, they can reference games in order to identify and incorporate these motivational components into their environment. For example, elements like levels help scaffold challenges. Game options allow learners to choose different skills and knowledge to learn. Storylines apply solving problems to a relevant task that has purpose and allows learners to create their own meaning about their actions. Allowing players to achieve a high score, earn a unique token, or gain a title like 'Master Crafter Dan' promote feelings of competence, confidence, responsibility, ownership, self-regulation, and efficacy.

Whether for a classroom, business environment, or life in general, instructors and individuals should play games to understand how these 6Cs are incorporated into the game. There's a level of metacognition that individuals need to pull this off, but when players are mindful of choices, challenge, control, collaboration, constructing meaning, and consequences

while playing a game, they can identify elements that drive motivation. Identifying these elements allows people to incorporate them into their environment, e.g. taking a new route to work and handling unforeseen problems. These individuals should also continue to reference the 6Cs of motivation to identify how these elements can be best used. Whether they reference this paper or other resources, such as Turner and Paris' 1995 paper or Wang and Han's 2001 website, recalling and refreshing how these motivational components affect learners is crucial to implementing them properly. As with the exergames case, researchers and instructors can think about motivational components before hand and use tools that have the capacity motivate learners, but a specific set of motivational elements needs to be implemented to drive motivation. It would be valuable to re-read the Theory section in this paper with a focus of games in order to derive more applications for game elements within an instructional setting.

A number of motivational theories support similar concepts; for example, self-determination theory's competency and relatedness mirror aspects of collaboration (Kapp, 2012). Likewise, other educational paradigms, such as social constructivism and situated cognition, place emphasis on social contexts, which affect how learners construct meaning, derive consequences, and share ideas and expertise (Driscoll, 2005). Also, it is crucial to maintain a holistic approach when incorporating these elements into an environment. Individuals should be aware that these elements affect an assortment of domains, i.e. physical, emotional, mental, academic, and social.

Conclusions

It is important that instructors and individuals understand the impact that daily tasks have on motivation. As they construct classroom and real-world tasks, educators should learn and

understand the 6Cs of motivation in addition to other motivational theories. Motivation emerges through task interaction and task elements. Tasks that allow learners to make choices, control the task as well as their learning, and create meaning from the task have the biggest effect on student motivation. The 6Cs of motivation emerge through games, and educators or managers can use game elements that foster and facilitate these 6Cs to develop student and worker motivation.

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