Motivation through Gamification

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Abstract

Just venturing into independence, middle school students are often unmotivated and fail to complete assignments, losing vital learning opportunities that prepare them for high school and beyond. This is especially true when it comes to independent reading done for homework. Although not a formal pedagogy, gamifying tends to have similar components: mechanics, dynamics and aesthetics. This can be a powerful motivator if it encourages further engagement. In looking at previous studies and literature, first it is vital to look at the importance of independent reading for the middle school student. Reading independently promotes long-term learning, helps students meet standards, increases rigor and stamina for future success, as well as promotes a connection to books that will serve students throughout school and beyond. Beyond the importance of independent reading, student motivation is highlighted. The power of choice and extrinsic motivation leading to intrinsic motivation validates the concept of gamification as a tool for motivation in the classroom. The case for gamification is then made as a way to motivate middle school students to independently read.

**Review of Literature**

The middle school years are a unique time in the educational journey of a person. Often students find themselves falling short of expectations and standards, where in years prior, they were able to keep pace. Teachers often equate this with increased expectations of the curriculum coupled with increased independent responsibility. The standards for adolescents increase with rigor, but often student motivation drops off. Adolescents are often more concerned with extracurricular activities and peer relations, and often are not interested in completing high level tasks on their own. This is certainly true when it comes to meeting the standards for reading. As the Common Core standards are written, it is essential that students continue to read rigorously over the course of each grade level. The amount of reading required to get students ready for high school and beyond cannot be accomplished simply through classroom activities. The need for students to continue independently reading is great. Of course, how can we encourage students to pick up a book and read on their own? The real challenge then becomes motivating students. Finding ways to intrinsically motivate students is a dilemma every classroom teacher has experienced. While there is no perfect answer, looking at ways adolescents are motivated can give some insight. Taking a closer look at games is a start. Students are often motivated by video games that include elements like levels, badges/rewards and leaderboards. Video games use extrinsic rewards to create intrinsic motivation. Understanding these extrinsic rewards that keep kids playing might be a way to build motivation for students in the classroom.

**The Importance of Independent Reading**

Independent reading is the reading that students do on their own, usually outside instructional time. It is often choice selections and designed to encourage fluency and promote pleasure. It is widely recognized that independent reading is not just important, but fundamental for success in school and beyond the classroom walls. However, research indicates that many students do not choose to read on their own. In fact, a study by Anderson, Fielding and Wilson found that students spend less than two percent of their free time reading (1988). The numbers increase as students get older, as well, especially the middle school grades. A survey of 159 seventh and eighth graders reported reading independently up until seventh grade, then ceasing completely in eighth. Students only read material that was assigned or required (McCoy, 1991). Nothing is read simply for pleasure. Reading outside of school and for pleasure closes the literacy gap and better prepares students for higher education and success outside the classroom.

**The Link to Success**. There is some research that cites that light reading can be a stepping-stone for these reluctant readers. Researchers Dorrell and Carroll (1981) placed comic books in a library of a middle school and did not allow students to check the books out. Students had to visit the library to read. The researchers compared library use with circulation and found that the visits increased by 82 percent, whereas the circulation increased by 30 percent. It seems that the light reading might be a way to hook middle school readers, but moving to more difficult texts is needed for growth.

Another issue is what teachers have also referred to as the “Summer Slide.” This is when students are performing at or above grade level in June, but when they return in the fall, they have regressed. Heyns (1978) studied sixth graders from various racial and socioeconomic groups and found that the single summer activity that helps stop the slide and increase learning is reading. If that is the one thing students can do to improve their learning, then they need to not just be doing it in the summer, but year round. It is also recognized by scholars that exposure to print is a good predictor of spelling, vocabulary knowledge and general world knowledge. Cunnnigham and Stanovich (1991) assessed middle school students with a book title recognition test and correlated that print exposure contributes to the development of verbal abilities. Using this data compiled with several other studies, Cunnnigham and Stanovich (1991) also found that print exposure was a predictor of success in spelling, vocabulary knowledge and general world knowledge. It seems the more students are exposed to the written word, their likelihood for success in school increases.

**Literacy as a Social Process**. There is a high correlation between high scores on reading assessments and students who admit to having a high intrinsic motivation to read (Krashen, 2004). This motivation, however, may be explained at the middle school level with the social aspect of literacy. In 2010, Matthew Knoester from the University of Evansville conducted a case study of ten fifth, sixth and seventh grade students and suggested that reading is part of a social process. Parents of six of the ten reported that their students read without being prompted, the remaining four read, but only with pressure. Knoester’s most surprising finding, though, was the numerous examples where reading was tied to social interactions. Students loved talking about their books with their parents and also really enjoyed reading aloud at home. He found that students who read for pleasure do the following: discuss books, read similar books as friends and family, read along with friends and family, and read aloud to others (Knoester, 2010). To encourage middle schoolers to read, teachers must understand how important the social aspect is to their relationship with reading. This includes discussions, book recommendations and a general sharing of literacy in peer to peer, as well as parent to child relationships.

**The Challenge of Deeper Reading**. While encouraging students to read on their own outside of school seems to be the best way to ensure continuous learning, the challenge still exists in getting students to be successful readers of grade level materials, as the Common Core Standards demand. Independent reading involves choice selection by the reader, but students need to be able to read and comprehend grade-level texts with proficiency.

**The Problem with Accelerated Reader**. Many schools have used computer programs to track progress, most notably with the Accelerated Reader program. This is a program that was created to give students large amounts of reading practice with material geared at a student’s own reading level, with achievements specifically designed for the reader, namely points with individual goals. Through a computerized quiz, AR measures simple comprehension of books read. Students earn points based on how well they do on the quiz and the complexity of the reading level. This sounds like it could be a great motivator, but many studies have pointed otherwise. One study of two hundred and seventy fifth grade students in Jackson, Mississippi found that students who participated in the Accelerated Reader program had no significant increase in reading achievement than those students who did not (Melton, Smothers, Anderson, & Fulton, 2004). An earlier study found similar results with a sixth grade class. The first year the students used the program, the next year the students did not. The results indicated that after a year of exposure to the program there was no increase in comprehension scores on the Stanford Achievement Test (Mathis, 1996). Findings like these point to a problem with the design of the program. Perhaps simply testing students on simple comprehension (eg. did they read the book?) is not enough. Teachers must find a way to meet the rigor of the standards if comprehension is to be improved.

**The Balance of Choice and Rigor**. Using an approach that combines choice independent reading and grade-level texts, might be a way to meet the end of the year Common Core Standards. The classroom must be a place of rigor as well as building motivation and self empowerment. A reader’s workshop model, where students are given choice of independent reading is a popular approach to motivate students to read more, but it does not address the rigor of the standards. In-depth exploration of a text during close reading is still needed in the classroom. In one study from the University of Wisconsin, Whitewater examined the effectiveness of this dual focused classroom. Five teachers in grade six and four in grade seven with approximately 280 to 260 students implemented a workshop structure, that began with a read aloud. In a survey of the students, 91% cited choice, extended time to read and book clubs (all elements of workshops) as positive experiences. Teachers chose to use higher level texts during this read aloud to meet the rigor of the standards. They also included a wide range of print and media, as well. In addition, the teachers modeled how to read and interrogate texts, so students could access previously inaccessible texts (Stevens, 2016). By implementing a strong independent reading program, students were more motivated to read. However, they were still able to meet the needs of the rigor of analyzing grade-level texts through mini lessons and read alouds.

Another way this model was successful was utilizing the book club format, or collaborative grouping. Here students were given the opportunity to investigate their own questions while collaborating with others in the group. Students started with easier texts and through teacher scaffolding, learned how to formulate their own discussions and dig deeper into text. By allowing students to discuss grade level texts in these groups, they can work toward independence (Stevens, 2016). Students can then use these higher level inquiry skills to access more difficult reading on their own.

**Stamina, Fluency and Student’s Connection to Books.** As students enter middle school and the independent reading slows and sometimes halts for some students, the demands for reading for all intensifies. Thus, the gap between the reader and the non reader begins to widen exponentially. The trick to closing that gap is more reading. The amount of reading expected in college is staggering for most recent graduates. In middle school and high school we must build that stamina to make students successful. Reading a lot is what makes you good at reading. Students can not do it on their own, though. As Penny Kittle writes, “Readers need books that carry them along, compelling them to read. Readers need goals for the quarter, for the year, and we need to pay attention to quantity as well as quality in their reading lives” (Kittle, 2013, p. 8). Designing a classroom that facilitates reading is key to the success of independent learning. This includes books that students enjoy in which they can make a connection, books they can access at their level, as well as a teacher to hold them accountable. Independent reading is vital for student success and designing an environment for its success is necessary in the classroom.

**Student Motivation**

Having already discussed the necessity for student independent reading, especially in the middle school years, motivation to complete the task becomes our focus. Motivating middle school students to complete assignments, especially outside the classroom can be a difficult task. Getting students to complete higher-level cognitive tasks, like analyzing text as the Common Core Standards demand, is even more of a challenge.

**The Power of Choice**. First, we must examine the effectiveness of choice in the classroom. Teachers have long reported that allowing students options in their instruction enhances motivation (Flowerday & Schraw, 2000). Of course this is a perceived notion, based only on what teachers assumed in their classrooms. Consequently, Patall, Cooper and Wynn (2010) conducted a study in a high school classroom where they used homework as the central focus for choice. Knowing that students who complete homework are far more likely to get higher scores on tests, it’s vital that students complete the homework. By using choice, the study was examining if providing choice of homework assignments could, as Patall, Cooper and Wynn, (2010) wrote, “facilitate learning outcomes, including greater intrinsic motivation and perceived confidence” (para. 4). Teachers developed two versions of homework assignments. Students were offered a choice, while a control group was not given an alternative. Both were then given the same unit tests. The results were quite favorable for the students who had the choice homework assignments. Students felt more interested and enjoyed the homework more with a choice. They tended to complete more of the homework and scored higher on the tests (Patall, Cooper & Wynn, 2010). It should be noted that students were given a choice between two homework assignments that covered the same material, so the curriculum was not changed. The students had more of a perceived notion of choice. However, simply giving them a small choice, gave them an element of control and therefore had a larger buy-in.

In looking at self-determination theory, choice is an important part of an individual’s feelings of autonomy and motivation. According to self-determination theory, autonomy, competence and relatedness along with the social atmosphere to enhance these three, are what people need for intrinsic motivation (Ryan & Deci, 2000). Therefore, students need a sense of control and understanding in the classroom. It is vital for student motivation. It is also understood that the choice does not need to come from the student entirely. It is perceived choice of an individual that is related to his or her performance outcome (Patall, Cooper & Wynn, 2010). This means that simply allowing students to choose from two options will give them a feeling of control, thus motivating them.

**Internal Locus of Control.***The Hamlet Project*, used technology to motivate students to read, comprehend, and interpret *Hamlet*. The project moved students through a computer-generated unit where students had choices along the way. They found that students were motivated by the activity because it provided challenge, curiosity, control and fantasy (Abate, Steele, Bogard, & Hutchings, 2004). Referencing self-determination theory, as well, the study pointed out that, “Self-determination theory says that while we can’t make a person intrinsically motivated in something, the individual's internalization of the other’s values and needs can bring extrinsic motivation to a level at which it is as close as possible to intrinsic motivation and include an internal locus of control” (Abate, Steele, Bogard, & Hutchings, 2004, para. 5). Consequently, motivating students to complete challenging tasks and persevere is what will get them to learn.

A study at a non-technical university in Japan examined the effectiveness of student choice in curriculum. At the end of a unit, students were given a choice as to how they would like to present their end of the term project. The choices were Power Point, (which many were familiar), or in digital storytelling form. The study evaluated 53 students. Out of the 53, only 8 chose digital storytelling, the more time consuming of the two. However, students unanimously agreed that having selectable styles of expression for their project were good for them, allowing them some control over their own assessment. However, most students felt that the two choices were not equally challenging. Some students felt too anxious to choose digital storytelling , although they would have liked to learn more about it (Kasami, 2011). It seems having a choice that students perceive as “fair” may also be a critical factor in choice.

The goal in motivating is always to get a person to be intrinsically motivated, meaning do the task just for the sake of doing it. For students this would mean completing assignments simply because they want to learn. The problem becomes using extrinsic motivators, (grades, rewards, etc) to create intrinsic motivation. Choice could be the answer to this dilemma.

“One goal of education is to cultivate students’ individual interest in a topic, thereby cultivating ongoing curiosity and exploration, and ultimately, long-term learning” (Dobrow, Smith & Posner, 2011, p. 262). A study conducted by the aforementioned looked at MBA students and challenged the notion that they were merely working in their programs for a grade, not for learning. Their study highlighted the idea that extrinsic rewards (ie. grades) actually reduce intrinsic motivation. How can they reverse this phenomenon? Their answer was by giving students a choice to increase interest. Ninety-one MBA students from two universities participated. Fifty-three participants participated in the choice condition and thirty-eight in the no-choice condition. At the beginning of the semester students were told that they would be able to make grade allocations in the third week of the semester. That is, they could decide what percentage of their assignments--class participation, case analysis, and final group project--would make up their final grade. However, once submitted, they could not change. The results were measured by responses on a final survey. The study found that giving students a choice triggered situational interest, or satisfaction with the course, but also maintained that interest with students responding that they were interested in taking another course (Dobrow, Smith & Posner, 2011). Simply by giving students the ability to choose their own weight on assignments, gave them the sense of control that maintained their interests, motivating to achieve.

**Gamification**

While choice seems to be an effective answer for student motivation, gamifying the classroom will also motivate students to, not only master content knowledge, but persevere through tasks the average student would believe too difficult. Games in the classroom have been popular and highly effective for decades. However, gamifying is a fairly new technique from the past five years or so. It is gaining popularity and for a good reason. Although not a formal pedagogy, gamifying tends to have similar components: mechanics, dynamics and aesthetics. The mechanics define the way games are actually played. Dynamics guide how players and the game mechanics interact. Aesthetics refer to how the others interact to create cultural and emotional outcomes (Dicheva, Dichev, Agre, & Angelova, 2014).

Designing a gamified lesson presents some challenges, but good design is essential in a successful implementation. First, the goal must be clearly established before design begins, as with any well-crafted unit of study. Next, the mechanics must be established. *Leaderboards* or a listing of player rankings, can be a powerful motivator. Imbedded in game culture are *prizes*, or rewards along the way. This can serve the purpose of giving characters choices throughout, creating a far more personal experience, but it can also give students extra activities which are unlocked after certain levels are reached. This can be a powerful motivator if it encourages further engagement. *Achievements* should also be highlighted for the players. This can take the form of “badges” or simple icons to display on either an online profile or a physical bulletin board (Glover, 2013).

**Increasing Learning and Motivation**. While the concept is still relatively new, some studies have pointed to the hope that gamification does, in fact, increase motivation. One study of undergraduate cell biology students were offered the use of a computer game to learn information also taught in lecture. Fifty students from Plattburgh State University were given the option to play the game, but every student chose to play. The scores on the game were exceptionally high. On the exam, the scores for one question taught in lecture and included in the game was compared to a question taught in lecture and not played on the game. The class did 27.2% better of the question included in the game. These results show that a computer game, that offered points and rewards was more successful than lecture alone (Slish, Nash, & Primo, 2015).

Another study from the University of Bremen, evaluated the use of a mobile application (app) to learn the writing of Japanese characters, the kanji. The first version was a simple app, allowing practice in drawing the characters in a flashcard type setting. A second version was developed using gamification elements. In this one, if a user drew the character correctly, it would release magic to fight other characters. The participants used the apps for two weeks. The success rate of the first group was fairly high in learning the characters, 80%. The gamification group was slightly higher. However, the study also indicated that the gamified app was accessed more often. One could infer that this indicates a higher motivation by the users, thus, concluding the possibility that gamifying is a successful motivator (Sauerland, Broer & Breiter, 2015).

By applying game elements to a teacher education course, one study was able to show pre-service teachers just how effective this phenomenon can be. At Brock University, one hundred and thirty-three pre-service teachers participated in a gamified course on how to teach with technology using the TPACK (Technology, Pedagogy, Content Knowledge). The course work, including readings, videos and structured tasks, was chunked and listed on a hosted website. Grade points were assigned to each site and a badging system (achievements) was added to record completion of each task. At the end of the class, a survey was given to measure results. The findings concluded that the students felt they had learned the material in a positive environment. The majority indicated that they actually implemented the TPACK model during their lessons (85%). Before the course, only 50% used technology during their lessons. Of course, the majority of participants could describe the TPACK model and its implementation, having learned the material in a gamified unit. The knowledge was acquired (Figg & Jaipal-Jamani, 2015).

**Criticism of Gamification**. Being such a new style of teaching in the classroom, with its trials, also comes quite a bit of criticism. It is important to understand the pitfalls of gamification, in order to avoid creating curriculum that is ineffective in motivating. First, when creating a unit, it is important to understand your goal. So many gamified projects fail miserably because the goal has not been clearly set. You must consider various outcomes. Is your goal to get kids to turn in homework on time? Better retention time? Know what you want to accomplish before you begin. Next, you should know your audience. Bohyun Kim, in *Understanding Gamification,* references classification of players: player (motivated by extrinsic rewards), socializer (motivated by relatedness), free spirit (motivated by autonomy), achiever, (motivated by purpose). It is important to decipher the kind of classroom you have before designing (Kim, 2015).

You must also be aware of variables such as gender, age, culture and academic performance. Girls are far less likely than boys to enjoy competitive video games. Also, serious games tend to benefit students with less self-motivation and lower grades. Not all games are effective with different types of content. Card games and jeopardy are great for lower level content knowledge retention, but not a higher-level skill that needs an open-ended environment. You must design your game to fit the content goal (Kim, 2015).

The biggest criticism of gamification revolves around extrinsic rewards and intrinsic motivation. The goal for the student is not the reward, or achievement badge. The goal should be to motivate students to complete the task and acquire the knowledge. One way to combat this is not to have external rewards. Teachers can allow students to set their own goals or guide students to set their own choices. The challenge then becomes to create a task that is sufficiently motivating and fun without the reward. Gamification itself does not automatically motivate students. Students have to want to play along. They have to be intrinsically motivated to complete the task (Kim, 2015). In “Play as you Learn: Gamification as a Technique for Motivating Learners,” Glover suggests that rewards also need to be achievable and desirable in order to provide sufficient extrinsic motivation, but scarce so that student might feel that sense of accomplishment without the reward. Even no cost on-line badges should be used sparingly (Glover, 2013).

**Discussion**

In looking at previous studies and literature, first it is vital to look at the importance of independent reading for the middle school student. Reading independently promotes long-term learning, helps students meet standards, increases rigor and stamina for future success, as well as promotes a connection to books that will serve students throughout school and beyond. Beyond the importance of independent reading, student motivation is highlighted.

The power of choice and extrinsic motivation leading to intrinsic motivation validates the concept of gamification as a tool for motivation in the classroom. The case for gamification is then made as a way to motivate middle school students to independently read. Games in the classroom have been popular and highly effective for decades. Taking similar components of games: mechanics, dynamics and aesthetics, gamifying has become a recent trend. Research points to its potential success in the middle school classroom.

**Deficiencies in Current Research**. While many studies have been conducted on students using gamification techniques, it is still a fairly new concept in education. Of course, games have been used extensively in education. Computerized games that practice reading, math and other skills and measure progress are still used with great success throughout education. However, using gaming elements and applying them to a non gaming curriculum is not implemented as extensively. As for using gamification as a motivator for independent reading, many programs, such as Accelerated Reader have been tried, with noticeable deficiencies. Looking at a way to get students to connect with standards and with peers might be worth investigating. In the end, teachers are always looking for ways to motivate their students. Gamification presents a welcome opportunity to not only get students to complete reading and homework, but to be motivated to learn.

**Direction of this Study**

Due to the introduction of the Common Core reading standards and the understanding of the need for more stamina in reading and a rigorous understanding of text, this study focused on motivating students to read independently by using gamification elements, while still meeting the rigor of the standards. It took into account the need for peer interaction, higher levels of comprehension demands, as well as the need to simply get students to turn in assignments connected with their reading.

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