A Conceptual Review of Demerit Points as Punishment and Social Necessity

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Abstract

Research suggests that students are aware of how much time they spend using electronics for non-academic activities during class. Many students believe they are multitasking when they engage in distracted behavior in the classroom. To make matters worse, many educators have become complacent and ignore or tolerate the use of electronics because they have no way to effectively solve the problem. Studies show that the use of electronics, such as a laptop computer or a smartphone, can distract as many as six other people seated near that student. Students engaged in distracting behavior negatively impact the learning and teaching of course content for themselves and others around them. The problem has impacted all levels of education from grade school to college. Studies of motivation theory have provided significant evidence that students are motivated by educators who exercise strong classroom-management skills. A demerit system in which points are lost will significantly reduce unwanted student behavior in the classroom, specifically the use of electronic devices for non-academic activities, resulting in increased achievement as measured by the final exam. This solution can also be generalized to any classroom setting where students earn points.

1. Introduction

It is easy to wax nostalgic about a time when cultural norms required students to pay attention in the classroom. Since the proliferation of mobile devices, such as smart phones, laptop computers, and tablets, it has gotten easier for students of all ages to become distracted in the classroom and more difficult for educators to cope with the disruptions to learning and teaching (Ravizza et al, 2014; Attia et al., 2017; Frisby et al., 2018).

The general problem is that some students do not want to be in the classroom. This reality causes them to become bored and easily distracted by the electronic devices they brought to class (Glass & Kang, 2018; Jacobsen & Forste, 2011; Ravizza et al., 2014; Ravizza et al., 2016; Risko et al., 2013; Sana et al., 2013). Some educators have become complacent with the problem and have accepted the fact that some students will use electronics to their own detriment. Research has shown that students who bring electronics to class distract their neighbors as well (Sana et al., 2013). This is how the seemingly harmless use of electronics can become disruptive to learning and teaching in the classroom. As many as 2 to 6 students in view of their multitasking peer can be affected by one person's use of an electronic device in the classroom (Sana et al., 2013), but students expect the educator to take charge when the class is being disrupted (Al Qahtani, 2016).

The specific problem is that educators do not know how to properly motivate a diverse group of students with different backgrounds, personalities, and interests. Kraushaar and Novak (2010) reported that students spend approximately 42% of class time using electronics for activities that were not related to the course. A practical solution is needed that is easy to implement, will motivate all students in grade school through college, takes no time away from classroom instruction, and takes advantage of inherent motivating factors.

Most educators would agree that it is the teacher's responsibility to create a positive classroom environment (Monroe, 2009; Williams & Williams, 2011; Yilmaz et al., 2017), but this is a difficult task. To be successful, educators must enforce rules, procedures, and even consequences when rules and procedures are not followed (Al Qahtani, 2016). I propose that using a demerit system as punishment will deter the non-academic use of electronics in the classroom and improve academic achievement as measured by quizzes and exams. Like the problem, the solution is generalizable to any classroom setting where students earn points.

2. Literature

Electronics as Distractions

There is a significant amount of evidence indicating that the use of electronics in the classroom is a problem for many educators. In 2011, Jacobsen and Forste conducted a study in the United States using time-diary and internet-survey data from 1 026 first-year students to explore the use of various types of electronic media and first-semester grades.

The majority of students, 62%, self-reported using electronic media while in class, studying, or doing homework. In 2012, Junco conducted an internet survey in which he examined the relationship between multitasking and academic performance using a sample of 1,774 university students in the United States. A significant number of students, 69%, 28%, and 21%, self-reported texting, using social media and e-mail, and browsing the internet, respectively. In 2014, Ravizza et al. surveyed 170 undergraduate students in an introductory psychology course in the United States to examine the use of electronic devices to access the internet during class. The authors noted that all students, regardless of intellectual ability, demonstrated that they could not effectively multitask with electronic devices during class. Furthermore, all three studies provided evidence that using the internet for non-academic activities during class was detrimental to student achievement.

The use of electronics in classrooms has been studied as recently as 2017 by Carter, Greenberg, and Walker and in 2019 by Glass and Kang. The researchers studied the effect of laptops, tablets, and cell phones on quizzes and exams. Both studies were conducted in the United States and proved that the use of electronics for non-academic activities in the classroom reduced student learning. Interestingly, Carter et al. (2017) found no benefit from using computers in the classroom for academic purposes. Even the permitted use of electronics for academic activities was not beneficial to learning and teaching of course content. Glass and Kang (2019) found that performance on immediate quizzes was not affected, but unit exam and final exam scores were negatively affected by electronic distractions. Though short-term memory did not appear to be affected, long-term memory was negatively affected. These studies are significant because they indicate that the use of electronics in class is a persistent problem with no effective solution.

Students may not realize or even care that their self-destructive behavior affects others. Sana et al. (2013) conducted experiments in simulated classrooms with 77 undergraduate students at a large university in Canada to determine the effects of in-class laptop use on student learning. The authors reported that multitasking with laptops posed a significant distraction to users and fellow students and negatively impacted the learning of course content. Ravizza, Uitvlugt, and Fenn (2016) conducted a study with 507 university students in the United States and found that students spent an average of 37 minutes out of 1 hour and 50 minutes of class time engaged with social media, reading email, shopping, watching videos, chatting, reading news, and playing games. If half of students were actively engaged in these non-academic activities during class, the other half was likely distracted by them as well. This paints a bleak picture of the amount of learning and teaching that is actually taking place when electronics are present. All educators should be disturbed by the results of these studies.

Beland and Murphy (2016) studied technology distractions in primary and compulsory schools in England. Al Qahtani (2016) explored distracting behavior, including the use of technology, in university courses in Saudi Arabia. Attia et al. (2017) investigated technology as a distraction in

university courses in Saudi Arabia. Sun and Shek (2012) examined disruptive student behavior, including the use of cell phones, in Hong Kong junior secondary school classrooms. Neiterman and Zaza (2019) studied technology disruptions in university classrooms in Canada. Seemiller (2017) explored digital distractions among university students in the United Sates. Mandah (2019) investigated distracting behavior, including the use of cell phones, in secondary schools in Nigeria. Jacob, Adelaiye, and Bijik (2018) examined technology distractions among university students in Nigeria. Goundar (2014) studied technology distractions among university students in New Zealand. These studies serve to highlight the fact that students of all ages and education levels are using electronics in the classroom for non-academic purposes. These studies also indicate that this is at least a multi-national problem if not a global one.

In an attempt to solve the problem with the use of electronics in the classroom, Rekart (2011) wrote an opinion article in which he stated what we already knew: students who engaged in distracting behavior while in the classroom, studying, or doing homework impeded learning and academic achievement. To address the problem, Rekart (2011) recommended educators use frequent quizzes and tests, asserting testing enhances learning. The is known as the testing effect, which utilizes repeated recall to help strengthen long-term memory (Van Deventer, 2015). Students learn course material better if they are forced to recall it on frequent quizzes and exams (Van Deventer, 2015). However, for students to benefit from the testing effect, they need to be paying attention (Glass & Kang, 2019). The use of a demerit system would motivate students to disengage with electronics and force them to engage with the course material instead.

Classroom Management and the Learning Environment

Williams and Williams (2011) conducted a review of literature related to motivation and identified five key components: student, teacher, content, method, and environment. According to them, teachers were essential classroom managers responsible for a motivating learning environment. Yilmaz, Sahin, and Turgut (2017) analyzed academic articles published in the years 2000-2017 and identified classroom management and teaching methods as the most important factors affecting student motivation, stating that its most important purpose was to prevent the interruption of the learning and teaching process. It is no surprise to educators that classroom management is important; yet, the disruptive influence of electronics persists in the classrooms of most educators. Classrooms in which students are allowed to use or get away with using disruptive electronics are not being managed effectively. These articles drive home the point that educators cannot afford to be complacent and must find a way to effectively eliminate the unwanted use of electronics in the classroom.

Al Qahtani (2016) distributed a questionnaire to 190 undergraduate students studying educational policies, psychology, special education, and Islamic studies at King Saud University. The purpose of the study was to identify undesirable student behaviors and discipline strategies. The researcher identified cheating, rude manners, cell-phone use, side talking, and arriving late as the most undesirable behaviors from the student perspective. This study is significant because it provides evidence that students want strict rules and consequences, which are viewed as a crucial part of the educational process. Al Qahtani (2016) and Yilmaz et al. (2017) also asserted that effective classroom management remained a major challenge for educators. Students rightfully count on educators to solve classroom problems. A demerit system is punitive, but students expect punishment when rules are broken (Al Qahtani, 2016). As educators, we should not be afraid to give students what they rightfully expect from us.

Reward and Punishment as Motivation

Motivating factors such as reward and punishment were studied as early as 1898 and 1911 by Thorndike and studied again by Skinner in 1963, Tversky and Kahneman in 1986, Davison in 1991, Gray et al. in 1991, Ehrlich in 1996, and Hackenberg in 2009. It is well established in the literature that both reward and punishment are critical influencers of behavior. Thorndike (1927) was the first to report that reward increased wanted behavior and that punishment decreased unwanted behavior. The phenomena were studied later by Sidman (1962), Herrnstein and Hineline (1966), Schuster and Rachlin (1968), and Villiers (1980). In 2016, Kubanek, Snyder, and Abrams conducted a study with 88 undergraduate students from Washington University to conclusively determine whether reward and punishment were distinct factors in guiding behavior. Like their predecessors, the researchers determined that punishment was needed to decrease unwanted behavior and reward was needed to increase desired behavior.

McClurg and Morris (2014) conducted a series of surveys in which they sought to determine what factors motivated students to do well in class and which reward methods were preferred by students. They asked 143 undergraduate students to rank their preferences in a list of 12 possible incentives related to classroom performance. The results of the surveys indicated that students are motivated by grades and would prefer to have extra credit points added to their final grade. This study is significant because it demonstrates the use of a reward to encourage studying for exams, but a reward does not eliminate unwanted behavior such as the use of electronics for non-academic activities in the classroom. A demerit system in which students lose points is needed to deter students from breaking classroom rules. A demerit system capitalizes on what students care about most, their grades.

These studies are significant because they demonstrate that rewards cannot be used to deter unwanted behavior. Rules prohibiting the use of electronics for non-academic purposes should be clearly communicated to students at the beginning of the term, but consequences are needed to ensure that disruptions to the classroom environment are minimized. Punishment in the form of a demerit system would be more effective than a reward system if you are trying to eliminate an undesirable behavior such as using

electronics and causing distractions in the classroom.

Demerit Points as Motivation

As early as 1979, researchers like Kahneman and Tversky argued that the threat of a loss had more influence on behavior than a potential gain of the same magnitude. This phenomenon was also observed by Thaler in 1985; Kahneman, Knetsch, and Thaler in 1990; Hardie, Johnson, and Fader in 1993; and Novemsky and Kahneman in 2005. In a study conducted by McGraw, Larsen, and Kahneman (2010), 45 to 84 undergraduate students participated in three different tests where they were asked to imagine a game in which they had a 50% chance to win $200 and a 50% chance to lose $200. Participants indicated that the potential loss was felt more intensely than the potential gain.

Educators at all levels (grade school through college) can take advantage of the asymmetry to reduce or even eliminate unwanted behavior in the classroom. Using demerit points to decrease unwanted behavior would likely be more successful than a reward system because students would feel the loss of points for unwanted behavior more intensely than they would feel a gain of points for a desired behavior (McGraw et al., 2010). The researchers cautioned that there were some studies that showed no asymmetry in the intensity of feelings for reward and punishment (Mellers et al., 1997; Mellers, Schwartz, & Ritov, 1999), but there is overwhelming evidence that the use of punishment, such as a demerit-point system, is effective at reducing unwanted student behavior (Kahneman & Tversky, 1979; Thaler, 1985; Kahneman et al., 1990; Hardie et al., 1993; Novemsky & Kahneman, 2005; McGraw et al., 2010).

In another study conducted by Zainal and Salleh (2007) in Selangor, Malaysia, the researchers used a mixed-methods approach in which they surveyed 354 students and 100 teachers and interviewed 20 teachers directly involved in the use of a demerit system to evaluate the effectiveness of penalty points at decreasing vandalism. Students and teachers reported a significant decrease in the amount of vandalism that took place in the schools as a result of using penalty points as a deterrence. This study proves that a demerit system can be used to enforce all classroom rules and can eliminate a wide range of behaviors.

Embarrassment as Motivation

Punishment is a naturally evolved tool used to influence behavior (Thorndike, 1898, 1911; Skinner, 1962; Tversky & Kahneman, 1986; Davison, 1991; Ehrlich, 1996; Keltner & Anderson, 2000; Hakenberg, 2009; Feinberg et al., 2012; Krettenauer et al., 2014; Kubanek et at., 2015); but it is often avoided because punishment can also cause embarrassment. Researchers have demonstrated that embarrassment is a natural emotion that serves a necessary social function, including the development of a healthy conscience (Krettenauer et al., 2014), comradery, and trust (Keltner & Anderson, 2000; Feinberg et al., 2012).

Ausubel established embarrassment as a component of harmonious social relations as early as 1955. Embarrassment as a factor in social interactions was studied again in 1967 by Goffman. Later researchers like Scheff (1988), Kochanska (1993), and Keltner, Young, and Buswell (1997) determined that embarrassment plays a critical role in social relations like teasing and punishment to motivate moral behavior, conformity, and the development of a moral conscience. This brief history is evidence that embarrassment as punishment is necessary for students to develop healthy relationships with their peers and should not be avoided by educators.

Al Qahtani (2016), Williams and Williams (2011), and Yilmaz el al. (2017) identified classroom management as a key factor in student motivation. The researchers also insisted that, as part of maintaining a positive classroom environment, educators should be careful not to embarrass students. Like many of today's educators and parents, they believed embarrassment should be avoided but they were not aware of the emotion's vital role in social and moral development. Without some embarrassment, it is not possible to provide students with a positive learning environment. The embarrassment that accompanies discipline is necessary for changing behavior and developing harmonious social relations (Ausubel, 1955; Goffman, 1967; Scheff, 1988; Kochanska, 1993; Keltner & Buswell, 1997; Keltner, Young, & Buswell, 1997).

In another study, Keltner and Anderson (2000) conducted a review of literature related to the social consequences of embarrassment. Feinberg, Willer, and Keltner (2012) conducted five empirical tests of embarrassment as a social function in which they asked undergraduate students of a psychology or sociology course to complete questionnaires or to rate videos of others detailing an embarrassing moment. Researchers for both studies found that embarrassment served an appeasement function, allowing for people to be forgiven or even liked and trusted after social transgressions. Though punishment could be embarrassing for students, embarrassment as a consequence of unwanted behavior should not be avoided by educators. Embarrassment is an important component of social interactions.

Krettenauer et al. (2014) conducted a longitudinal study in which they investigated anticipated moral emotions and decision-making of 1,258 Swiss adolescents between the ages of 15 and 21. The researchers used a semi-structured interview procedure to assess anticipated moral emotions and decision-making and found that positive feelings after a moral transgression decreased over time, whereas positive feelings after a moral decision increased. As children age, moral emotions, such as embarrassment, shame, and guilt, continue to develop (Krettenauer et al., 2014). The researchers concluded that experiencing moral emotions is important for the development of everyday moral behavior.

It is evident that a significant number of students use electronics (laptops, tablets, smart phones, etc.) to entertain themselves (texting, using social media, surfing the internet, watching videos, online shopping, etc.) in the classroom. Stopping this behavior is essential to effective classroom management. The literature supports the use of a demerit system in which students experience the loss of points as a consequence of their disruptive behavior. Demerit points

make a practical and effective disciplinary tool for enforcing classroom rules and policies intended to provide all students with a positive classroom environment in which they can learn without disruption.

3. Theoretical Framework

The psychology of a demerit system is complex because it is comprised of several interrelated concepts: behavior, motivation, and prospect theory. Under behavior theory, educators use external mechanisms to solicit a change in classroom behavior (Zimmerman, 1995). This means using conditioning to achieve a desired behavior. Conditioning for a desired behavior can be accomplished by providing a motivation.

Motivation theory has two basic elements: appetitive and aversive (Gray, 1981, as cited in Potts, 2011). Appetitive motivation involves the use of a reward to cue desired behavior (Potts, 2011). Aversive motivation refers to the use of punishment to deter unwanted behavior (Potts, 2011). Most educators favor a reward system to motivate good behavior. By rewarding students for good behavior, you encourage only good students to continue the behavior leading to more rewards (Zimmerman, 1995). Unfortunately, uninterested students will forgo the reward and continue the unwanted behavior.

Prospect theory, which compares the effect of a potential gain to a potential loss, suggests that people are risk averse (McGraw et al., 2010). Educators can capitalize on this idea by implementing a demerit system in which students lose points for engaging in unwanted behavior. Well-performing students will naturally comply and low-performing students will stop causing distractions with their electronics to avoid losing their hard-earned points.

4. Methodology

This study was conducted using a systematic literature review. The specific steps included formulating the research question, problems statement, and hypotheses. A thorough literature search was conducted and articles relevant to classroom management, electronic distractions, motivation theory, behavior theory, and gaming theory were reviewed. The quality of the articles was assessed primarily by determining whether they were timely or could provide historical perspective. Information from the articles was then summarized, analyzed, and synthesized in the form of an annotated bibliography. The last step in the systematic process was to write the article using information from the annotated bibliography. Information was obtained throughout the systematic process as it became available during a continuous search for literature related to the paper.

5. Application

Effective classroom management involves creating a positive environment where students can learn without distractions (Monroe, 2009; Williams & Williams, 2011; Yilmaz et al., 2017). Creating a positive classroom free from the disruptive influence of electronic devices is not easy because it requires educators to enforce rules and procedures (Al Qahtani, 2016).

A demerit system will motivate a diverse group of students with different backgrounds, personalities, and interests. A demerit system is easy to implement, takes no time away from classroom instruction, takes advantage of an inherent desire to avoid a loss, and helps students develop a healthy moral compass. The use of demerit points as punishment is a practical way to deter the use of electronics in the classroom for non-academic activities and it should result in improved achievement.

It is simply a matter of time before some students become restless and use a laptop, tablet, or smart phone to entertain themselves in class by texting, using social media, surfing the internet, watching videos, and shopping online (Jacobsen & Forste, 2011; Junco, 2012; Ravizza et al., 2016). These activities not only affect the users of the devices, they distract the students within view of them. Research shows that these distractions negatively impact exam scores for both the users and fellow students (Sana et al., 2013). Sana et al., (2013) reminds us that students who use electronics for non-academic activities in class made an individual choice to disrupt their own learning, but it is disrespectful to disrupt the learning of others. It is the responsibility of the educator to manage the classroom and ensure that all students have a positive environment in which they can learn (Monroe, 2009; Williams & Williams, 2011; Yilmaz et al., 2017). The only way to ensure that all students have a positive learning environment is to enforce classroom rules and policies (Al Qahtani, 2016) and a demerit system is an effective way to do that.

6. Recommendations

The best way to test a demerit system is to use two groups of participants, consisting of a control group and a treatment group. This could be accomplished by using two or more sections of the same course and designating one or more sections as the control group and the other sections as the treatment group. All sections should be taught by the same instructor, preferably the researcher, to maintain consistency in teaching method used across the groups. The researcher would implement the demerit system in the treatment group but not in the control group. There should be no demerit system for the control group. Student achievement could be measured using the mean percentage for correct answers on the pre-test and final exam.

Participants could be drawn from a target population consisting of adults 18 years of age and older studying at the university. The target population could consist of students taking the course to satisfy a requirement of their degree program, to fulfill an elective requirement, or to satisfy an interest. Participants should be allowed to enroll in any section of the course that was available to them at the time of registration. The researcher could randomly designate one section as the control group and the other section as

the treatment group. Students should not be made aware of the study or the treatment until the start of the course.

A pre-test should be used to ensure that all participants started the course with roughly the same knowledge of the course topic. The final exam should be identical to the pre-test to ensure the same knowledge is tested at the end of the course and to measure how much students learned. The mean percentage for correct answers on the final exam could be used as the measure of student achievement (Van Deventer, 2015). Care should be taken to make sure the exam questions are a fair representation of the material taught in the course. It is recommended that the researcher use multiple-choice questions to measure achievement because they are easy to grade.

In other studies, the independent variable was the demerit or reward system, which was also the treatment administered to the students (Zainal & Salleh, 2007; Kubanek et al., 2015). The independent variable should have a nominal value of 0, indicating the student received no treatment, or a 1, indicating the student received the experimental treatment in the form of demerit points. Participants in the control group would not receive the experimental treatment, so they will all be coded with 0 for the independent variable. Participants in the treatment group would receive the experimental treatment, so they will all be coded with 1 for the independent variable. Coding the independent variable this way will allow the researcher to predict a positive correlation between the demerit system and final-exam scores.

In other studies, student achievement was the dependent variable and was measured using a final exam (Kubanek et al., 2015; Van Deventer, 2015). The dependent variable should have a ratio value and would depend on the outcome of the final exam for each student. The researcher is comparing the mean percentage for correct answers for the treatment group to the control group.

The descriptive statistics, which are the mean scores for correct answers from the control group and the treatment group can be compared to see which group performed better. I recommend that the data be further analyzed using a regression model. The regression model can be represented as $Y = AX + B$, where Y is the dependent variable, A is the coefficient, X is the independent variable, and B is the intercept. The formula can also be expressed with the known variables as Achievement = Prediction (Demerit System) + Minimal Student Grade. The highlighted area is the anticipated effect the demerit system (coded as 0 or 1) will have on final exam scores. The intercept, which is the minimal student grade, is calculated by the regression formula based on the values entered for the various participants. I anticipate the effect of the demerit system will be positive, so achievement should increase significantly. If the p-value is less than .10, it means the effect of the demerit system on student grades is strong. The lower the p-value, the stronger the effect is.

To control for confounding variables such as GPA, major, gender, and race, the general ordinary least squares (OLS) formula can be represented as $Y = AX + B + CV$, where CV represents the confounding variables (GPA + major + gender + race). The GPA would be a continuous variable in which you would key all of the GPAs for the participants. The major, gender, and race would all be nominal variables. The major would be codes 0 for non-majors and 1 for majors if the course subject is related to a major; otherwise, the major is not needed as a variable and can be omitted. This coding assumes that non-majors would not do as well as majors. Gender would be coded as 0 for male and 1 for female, if we assume that men generally perform worse than women in college. Race would be coded as 0 for non-white and 1 for white if we assume that non-white students do not perform as well as white students. The assumptions may not be true. The t-value will indicate the significance of the control variable. If the t-value is 1.67 or higher, it is considered a significant finding.

7. Conclusion

Researchers conducted studies in many countries around the world and examined the behavior of students at all education levels. They all concluded that students will use electronics for off-task behavior in the classroom. This behavior will also distract peers seated around them. The result is a significant amount of wasted class time and decreased learning. Fortunately, there is an easy solution. I predict that a demerit system in which points are lost will significantly reduce unwanted student behavior in the classroom, specifically the use of electronic devices for non-academic activities, resulting in increased achievement as measured by the final exam.

Researchers have provided significant evidence that students are motivated by educators who exercise strong classroom-management skills (Monroe, 2009; Williams & Williams, 2011; Yilmaz et al., 2017). Effective classroom management requires the enforcement of rules, policies, and consequences (Al Qahtani, 2016). If there are no consequences, the rules will not be taken seriously and the problem with unwanted behavior will persist.

Consequences do not need to be severe. For some students, simply pointing out or drawing attention to an infraction is enough to avoid further problems. For other students, a little embarrassment is not enough. To effectively motivate all students, it is necessary to exploit something that all students value, their points. A demerit system in which points are lost is the best way to eliminate the problem. Motivation theory suggests that students fear the loss of points they already earned more than they appreciate the promise of a reward for good behavior. Some students will be motivated by rewards, but not all of them. There will always be a few students who will forgo a reward for the opportunity to text a friend sitting next to them, update their Facebook page, or play Candy Crush; however, no student wants to lose points they already have. Explain the class rules, explain the consequences (for instance, take away five points for every infraction with no limit to the points they can lose) and see how quickly behavior may change.

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