A Practical Review of the Role of Intrinsic Motivation In Online Learning

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Intrinsic Motivation Defined

The word intrinsic refers to an internal worth of an object. Intrinsic motivation is therefore motivation created by internal factors rather than external. A classic definition is "a motivation to engage in activities that enhance or maintain a person's self-concept" (Purkey & Stanley, 1991). Later studies focus on the perceived feelings, especially enjoyment, that come from intrinsic motivation. From an intrinsic motivational perspective, behavior is evoked from the feeling of pleasure, joy, and fun. Perceived enjoyment is "the extent to which the activity is perceived to be enjoyable in its own right, apart from any performance consequences that may be anticipated" (Lee 2005). In education, intrinsic motivation encompasses any student behaviors which are performed out of interest and satisfy the innate psychological needs for competence.

Importance of Intrinsic Motivation in Distance Learning

"When students are intrinsically motivated, they are more likely to be engaged in their learning and also to achieve high standards" (McCotter 2008). Intrinsic motivation has been established in the traditional classroom as a powerful determinant of student success. Research in the distance learning community has shown that intrinsic motivation has the same importance, but perhaps with a more complicated way of delivering intrinsic factors.

Yukselturk and Bulut (2007) investigated the relationship between intrinsic goal orientation and students' academic performance in online courses. They compiled data from a pool of eighty online learners at the end of the university course. The findings revealed that intrinsic goal orientation was significantly associated with students' academic performance in their course. Radovan (2011) also investigated the relationship between different dimensions of self-regulation and academic performance in online students. Finding that students having high levels of intrinsic goal orientation were more likely to be academically successful than students having low levels of intrinsic goal orientation. These studies have established that higher levels of student intrinsic motivation lead to higher student achievement in an online setting. To promote this intrinsic motivation within online students, online educators must find ways to design courses that facilitate this outcome. "To unleash the full potential of technology supported learning environments the technology should be designed and applied in such a way that it reinforces the students intrinsic motivation" (Shroff 2011). In order to reinforce intrinsic motivation, we must look at the factors that are affecting intrinsic motivation within the online learning environment. "Through a systematic study of intrinsic motivation we can shed light on how to design appropriate viable and effective technology-supported learning environments that are sensitive to individual differences" (Shroff 2011).

Social Intrinsic Motivators

"A major factor in distance education related to students not succeeding to learn has been the individual distant student feeling isolated-without other students to turn to for support" (Kawachi 2003). The opportunity for social intrinsic motivation has been shown through the use of face-to face web technology, social chat outlets in the classroom, and collaborative learning. More opportunities are emerging every day in this field and it is important for educators to utilize them and understand the role social intrinsic motivators play in the online learning platform.

Because of the nature of distance learning, and the isolation it can create, online educators will have to address how to create social environments, perhaps more so than traditional classroom instructors, in order to nurture social intrinsic motivators.

Personal Intrinsic Motivators

"Among vocational, academic, personal, and social motivations, the personal intrinsic motivation may be educationally the most effective and most desirable" (Kawachi 2003).
These motivators are cultivated internally - not based on a social context. They are feelings evoked within a learner that can be nurtured through technology, course design, perceived ease of use, and other student and course variables that can be manipulated by the instructor.

Factors that Promote Intrinsic Motivation

It has been established that higher levels of intrinsic motivation result in better student performance. In order to increase intrinsic motivation levels, educators must be aware of the forces that affect intrinsic motivation. Research has identified seven main factors that are the most important in fostering intrinsic motivation (Malone 1987). The personal intrinsic factors are curiosity, control, and fantasy, and the social intrinsic factors are competition, cooperation and recognition. "Assessing the factors deemed to support individual student intrinsic motivation may assist in enhancing intrinsically motivated behavior in technology-supported learning environments" (Shroff 2009). First we will look at why each of these factors are important nurturers of intrinsic motivation, then suggestions will be provided for online educators for ways to enhance and embrace these aspects within distance learning.

Challenge

Adequate stimulation in the form of challenge is a critical intrinsic motivator (Shroff 2009). People are best motivated when they are working toward personally meaningful goals whose attainment requires activity at a continuously optimal (intermediate) level of difficulty. The goal of achieving optimal challenge is to keep learners interested, but not overwhelmed (Reifman 2011). Challenge is a subjective factor, meaning that the learner's perception of challenge will supercede the subjective task identities. "Fundamentally, challenge involves an individual's anticipatory self-appraisal of two factors- expectations about goal directed accomplishments and a perceived ability to perform activities directed at achieving those goals" (Shroff 2009).

Curiosity

Curiosity refers to something in the physical environment that attracts the learner's attention or an optimal level of discrepancy between present knowledge or skills and what these could be if the learner engaged in some activity. "Curiosity, and the related more general field of intrinsic motivation, has been recognized as playing a part in a wide range of human endeavour: it contributes fairly obviously to the development of science, and it has a role on

the creative arts although creativity requires a more aggressive production element as well as curiosity which forms the front end, as it were, of the creative process in both the arts and the sciences" (Beswick 2000). Many researchers actually see curiosity as the base of intrinsic motivation. In some studies the two are seen as exchangeable, being that the other factors of intrinsic motivation can be seen as elements of curiosity. "Curiosity is the source of internal motivation;avoiding the problem of rebellion caused by externally applied motivators" (Sumrongthong 2008). Heightened curiosity leads to a natural drive to learn. Whether in an educational setting or the natural world, people have the need to relate to the environment they are in. "This need provides energy to act on the environment. These desires to explore, discover, understand, and know are intrinsic to an individual's nature and are central motivators for his or her behavior" (Shroff 2009). A distance learning environment must consider this intrinsic need in order to create the best possible learning environment.

Control

Control involves the learner making the decisions directly affecting the outcome of what happens to them. In order to foster a sense of intrinsic motivation, user control must first be established. In the online setting the importance of control is detailed in the Technology Acceptance Model (Venkatesh 2000). When users feel control over the platform they are using, they have a higher sense of perceived use. "Even though perceived usefulness and ease of use had no effect on university students' intention to use e-learning, these constructs were related to the attitudes toward e-learning. Overlooking these constructs could have detrimental effects on the user's acceptance of information technology. Thus, it is necessary that managers and developers of e-learning help students confirm or increase their perception positively through e-learning" (Park 2009).

Fantasy

Fantasy involves learners using mental (or virtual) images of things and situations that are not actually present to stimulate their behavior. Fantasy can be separated into exogenous and endogenous types. Exogenous fantasy is one where the fantasy depends on external controls. An example of this would be a virtual game in which answering math problems correctly determines the progression of the entity in the game. Endogenous fantasies are ones in which not only does the fantasy depend on the skill, but the skill depends on the fantasy (Moon 2009). "Endogenous fantasies are both more interesting and more educational than exogenous fantasies. It may provide the learner with leverage for better understanding knowledge by relating it to past experience" (Moon 2009). A distance learning environment relies heavily on technology, as do many learning platforms that incorporate fantasy. For this reason, fantasy has been one of the most heavily studied aspects of intrinsic motivation in online environments.

Competition

Competition is perhaps the most interesting of the factors shown to affect intrinsic motivation. Early research actually showed that competition had a detrimental effect on intrinsic motivation (Deci 1981). However more recent research, and research involving distance learning and intrinsic values have shown that competition demonstrated the positive potential of competition on intrinsic motivation, showing that competition can have positive effects for certain types of individuals or in certain situations (Tauer 2004). Two aspects of competition were identified that showed increases of intrinsic motivation(Sansone 1996). The first was the competitional aspect established at the beginning of an event. “Studies have demonstrated that competitive contexts can increase both competence valuation (or the desire to do well) and a sense of challenge or excitement, either of which can promote intrinsic motivation” (Harackiewicz 1999). The second aspect of competition shown to increase intrinsic motivation is performance feedback that is given at the end of an event. Feedback is given a higher level of importance when an event is deemed challenging. “Competition may have a positive effect because it poses an exciting challenge and/or increases the importance an individual places on doing well. As a result, individuals may become more involved in the activity, thereby promoting intrinsic motivation” (Tauer 2004).

Cooperation

Within education, cooperation refers to satisfaction achieved by helping others and working together to achieve shared goals. Malone and Lepper identify cooperation as one of the seven factors influencing intrinsic motivation.They found that learners would be much more highly motivated if the success of independent tasks would be dependent on the efforts of group members. “Cooperation nurtures intrinsic motivation because it satisfies our students’ need for belonging and because it usually makes activities more enjoyable. Furthermore, when kids work together, they are more likely to be successful at a given task than they would be alone” (Reifman 2011). Intrinsic motivation in learning requires a feeling of translatable skills. Cooperative environments increase students’ interpersonal skills which is a primary real world ability and easily translatable to real world scenarios.

Working in collaborative environments has been a challenge for e-learning educators because of the asynchronous nature of distance learning. Some studies have also shown student’s preferences to work alone in web based environments because of the extra challenge involved in group work. “If these issues are considered in conjunction with the reason students choose to take distance learning courses instead of face-to face courses, the problem is obvious. Students take online courses for convenience, often because they have family and work responsibilities. Team assignments are not necessarily convenient” (Brinkerhoff 2007). However, distance learning must find ways to incorporate this useful real-life skill that develops interpersonal skills (Vockel). The challenge is for distance educators to encourage cooperation that isn’t inconveniencing, but beneficial.

Recognition

Recognition occurs when learner’s accomplishments are recognized and appreciated.

Many times recognition is confused with reward. The difference is that rewards are extrinsic. They are promises- If you achieve a certain goal you will get a certain reward. ”Though recognitions often come in tangible form, they are never promised in advance and are not used to manipulate behavior” (Reifman 2011). Appreciation itself is an intrinsic force. In an online atmosphere recognition may be more important than a traditional classroom because of the isolation students can feel. To make activities and achievements “visible” can provide relief from this feeling of disconnection.

Suggestions for Online Educators

The factors that promote intrinsic motivation are identified as challenge, curiosity, control, fantasy, competition, cooperation, and recognition. To increase intrinsic motivation among students, these factors must be addressed within the classroom. The following are suggestions for online teachers on how to enhance each of these factors in the online setting.

Implementing Optimum Challenge

“Csikszentmihalyi contended that the concept of flow captures the peak experiences of intrinsic motivation, and his experiment demonstrated that most flow experiences occurred when actively involved in challenging tasks. This play-and-learn approach encourages students to use the Internet Based Learning system (ILM)” (Lee 2005). When creating challenge within a course the goal is to create “optimum challenge.” This means that the challenge is specified to the individual student, it is not unattainable, or too easy. “This whole issue of optimal challenge directly connects to the topic of differentiated instruction” (Reifman 2011). In order to create optimal challenge for each student, the curriculum must be differentiated to each students learning needs. In an online environment it can be hard to perceive the needs of individual students, and therefore the students feedback and preferences are important sources for the instructor to provide optimal challenge. “Instructors who want to challenge their students should encourage them to choose entry level tasks that are precisely suited to their abilities. The integration of online discussions into the course may fit nicely with this approach. A model that may be developed would be one in which learners start using online communication platforms, in order to develop experience and skill proficiencies in using the technology” (Shroff 2009). Differentiation in challenge will be the key factor for instructors to create optimal challenge. In providing this challenge students will have more pride in their achievements, leading to more invested effort, a more positive learning atmosphere, and enhanced success.

Another way to nurture challenge is outcome uncertainty. “Outcome uncertainty adds significance and drama to one’s immediate actions, and promotes further involvement in the activity. When outcome uncertainty is low—as when a chess player outperforms his or her opponent by a wide margin—so too is the degree of suspense” (Abuhamdeh 2011). When students are pre-aware of an activity’s outcome, it will decrease challenge because there will be no curiosity or effort put into creating an outcome of their own choice. Hypothesizing an outcome, or manipulating factors to try to achieve a perceived outcome are ways internal

challenge is promoted within learning.

"Challenge was a stronger predictor of enjoyment for intrinsically motivated, goal-directed activities than for non-intrinsically motivated, goal-directed activities. Additionally, challenge more strongly predicted enjoyment for intrinsically motivated activities that were goal directed compared to intrinsically motivated activities that were not goal directed" (Abuhamdeh 2011) This study suggests that to create challenge, the environment must be goal-driven. In setting course goals that will fulfill the factor of challenge, they must be personally meaningful and the attainment of them must be probable but uncertain (Vockel). This aspect of uncertainty provides a challenge and a sense of fulfillment when attained. Relating these goals to learners' self-esteem will allow for a long term positive impact on intrinsic motivation.

Creating an Environment That Nurtures Curiosity

The nurturing of curiosity in learning can also increase the other factors of intrinsic motivation, because it serves as the base internal motivator. To increase curiosity in an online learning environment "activities must be designed to make the student aware of their initial self-limiting baseline of curiosity, and increase students' self-awareness of the importance of curiosity" (Sumrongthong 2008). In order to do this, the instructor must understand the two types of curiosity at play: cognitive and sensory. Cognitive curiosity refers to curiosity about the content of information, and sensory involves curiosity that keeps the senses stimulated. In an online atmosphere, usually only cognitive curiosity is addressed. It can be stimulated by student initiated topics based on their own interests, as well as a peer review and feedback loop process (Sumronthong 2008). To increase sensory curiosity in an online platform one must implement abrupt changes or new technology outlets that stimulate the senses. An example of this is the novelty effect: the tendency for human performance to improve initially upon instituting a new technology. "The novelty effect is a personal intrinsic motivation based on sensory or technological curiosity, and occurs widely and reliably(even in technological illiterates)" (Kawachi 2003). An online platform should utilize this effect and can use new technology to increase student interest and performance. The key here is making the new technology meaningful and beneficial to knowledge attainment. This requires technology that performs tasks relevant to the students' interests, and that can be used and repeated in the future.

Facilitating Student Control and Ease of Use

As mentioned before as a nurturing factor of curiosity, students ability to control the discussion based on their interests is a great way to foster intrinsic motivation. Elaborating on this, not only is it important for learners to freely choose what they want to learn, but also how they will learn it. In the online environment this is where the Technology Acceptance Model (TAM) comes into play. Venkatesh has shown that perceived ease of use is an intrinsically motivating factor that affects performance based on a person's feeling of self-efficacy with the technology being used. We have established that the use of new technology can enhance student learning with the novelty effect (Kawachi 2003). In order for this to also increase the control aspect of intrinsic

motivation, the learner must feel adequately capable of using this technology. Instructors can provide this sense of control through technology training programs. “One possible solution is to develop more user-friendly and user-oriented e-learning content and learning management system. This kind of system will add new perception to the previous attitude and thus bring about more satisfaction. This satisfaction in turn encourages students to optimistically make further use of e-learning” (Park 2009).

Another element of control is the long-term effect of learning. When students believe their work will lead to powerful effects, they will have a greater sense of control, and thus a greater personal motivation to succeed (Vockell). One way to ensure this is to put an emphasis on the cause and effect relationship between what learners are doing and things that happen in real life.

Creating Fantasy that Translates to Real Life

Great resources to bring fantasy into learning are educational virtual worlds or games. “The theoretical thinking for this is that the emotional attachment to the games fantasy will have a positive effect on reducing cognition and cognitive load” (Kenny 2007). Any fantasy game will not provide the educational benefit that online instructors are working to provide. As mentioned before, endogenous fantasies, ones in which skill and fantasy are dependent upon each other provide a better intrinsic value and learning environment. There are certain guidelines of fantasy based educational games that can provide optimal intrinsic motivation and effective knowledge building. “A well developed educational game that simultaneously and fully immerses the learner into the content and the learning into the fantasy context very closely parallels a constructivist approach to learning in which the learner becomes actively engaged in the construction of his or her own learning and creates an effective and authentic virtual classroom environment.” (Kenny 2007) The important element here is to make the fantasy world intrinsic rather than extrinsic. The fantasy needs to be relatable and translatable to real life situations for the user. Even in creating avatars this relatable aspect is important. “Fantasies are most likely to fulfill emotional needs when they provide imaginary characters that the user identifies with” (Moon 2009).

The factor of control also comes into play in developing an intrinsic fantasy world. Scenarios and settings must be user controlled. As the educator, your role is to mediate the users’ interactions with the virtual games, allowing them creative freedom. For fantasy situations to be effective in learning and increasing intrinsic motivation, they must be facilitated to provide knowledge that can be applied in real-life settings. “The end result should be content that is analyzed and synthesized, and re-applied in new contexts and is reused to the extent that the player-learner is able to recall the newly acquired information in an automatic manner so that it, in turn, can be used as the basis for new learning and/or higher order thinking skills” (Kenny 2007). Choosing fantasy based virtual games that fit these criteria can provide increased intrinsic motivation leading to higher student performance.

Provide Optimal Levels of Competition

There are two established aspects of competition that increase intrinsic motivation: the competitive context established at the outset of a competition and the performance feedback received at the conclusion of the event (Sansone 1996). Instructors must focus on these two aspects when designing learning materials that will foster competition. Clearly defined contexts will allow students the opportunity to prepare for competition, and will motivate performance throughout the event, assignment, or activity. Performance feedback should be given promptly, and address the competitive context. Feedback nurtures competition because it gives the learner a benchmark in which to improve upon. This benchmark fosters internal competition as well as external. Students can track performance, thus competing against themselves. Comparative feedback (whether between other students or an individual's previous work) is a good source of motivation. It is important that the the feedback is detailed and regular to promote personal cognitive curiosity(Kawachi 2003).

In order to avoid the detrimental factors competition can cause on intrinsic motivation, there must be a balance upheld by the instructor. Just like with the challenge factor, competition must be differentiated among students. It must be remembered that not all challenge is created by the instructor. Natural competition is an intrinsic force in which students compete internally to achieve higher than others or to perform better than their own past performances. This natural competition must be acknowledged and properly nurtured by the instructor. The biggest threat in providing a competitive learning atmosphere is its capacity to lower cooperation factors, and the disproportionate benefit between “winners” and “losers”.

Combining Cooperation with Other Motivators

Using collaboration within the online setting is not a new idea. Collaboration should not be solely centered on cooperation. “The benefits of cooperation are greatest when presented in conjunction with an external contingency (e.g., rewards, competition)” (Tauer 2004). To receive the highest intrinsic benefit, collaborative methods cannot be implemented without external stimulus. Cooperation and competition, the two seemingly combatant forces of intrinsic motivation are actually most enhanced when used together. “We hope that the current research will discourage researchers from treating cooperation and competition as an “either/or” proposition but rather encourage them to examine the benefits of both cooperation and competition” (Tauer 2004). Just like competition, cooperation is not only an artificially created atmosphere (Vockel). Natural cooperation will occur and educators must acknowledge and nurture this. Cooperation is more important for some people than for others (Vockel). Again differentiation will come into play. Relying on student feedback about group projects, discussion boards, and opportunities for non-class related social interaction should drive the creation and implementation of cooperative environments.

Making the Invisible Distance Learner Visible

Recognition requires that the process or product or some other result of the learning activity be visible. This is especially important with distance learning. WIthout the face to face with teachers or students, distance learners can feel isolated. The intrinsic force of recognition allows learners to feel "visible." Recognition differs from competition in that it does not involve a comparison with the performance of someone else. It is not a reward. It gives the learner a feeling of competence. Communication is a key factor in recognition. Feedback, especially positive feedback is an important source of recognition. Feedback should be timely, giving the students the feeling of respect. Other ways recognition can occur is to showcase student work or provide outlets for peer review. In this way students' work becomes visible to their classmates. They are receiving the feeling of importance through the actions of others reviewing their work. Studies have shown that the quality of feedback is more important than the quantity. "Text-based feedback in the form of verbal praise, may enhance individual intrinsic motivation, especially when the feedback is perceived as sincere, promotes autonomy, promotes positive information and conveys standards and expectations of the individual that are realistic and not disruptive" (Shroff 2011).

Reifman does identify a possible downfall of recognition. If a student receives positive feedback, it may cause them to continue exactly what they were doing with no room for change. In this way there is a possible chance recognition could prevent student growth. He addresses how to deal with this possible issue: "Any difficulties associated with recognition should be dealt with honestly and openly through class discussions. Be proactive. By identifying and discussing potential problems before they occur, we greatly decrease the likelihood that they ever will" (Reifman 2011).

Further Research

The few studies that have been done looking at intrinsic implications in online learning have provided a baseline for online educators. However the research is still limited. I would be interested in further research that implemented the suggestions of each one of these factors using various media techniques in order to find more specific 'best' practices for nurturing intrinsic motivation in an online setting. For example, research suggests in order to foster the most beneficial cooperative atmosphere, collaboration should be combined with another motivator. Further studies on the combination of cooperation and each motivator, hopefully revealing the best and worst results, would help specify suggestions for educators.

A limiting factor of the majority of the studies are their reliance on student self-reports and perceptions. This type of research tool is partial to psychological biases. In order to have more comprehensive data on the effects of intrinsic motivators these procedures should be combined with objective measurement methods.

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