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Factors Affecting Adoption of Video Games in the Classroom

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Video games are one of the fastest growing elements of informal, virtual learning. While their popularity in informal learning situations continues to grow, adoption in the K-12 classrooms remains stagnant. We attribute this to two separate but inter-related phenomena.
Game designers and developers fail to incorporate important pedagogic components. Teachers do not adopt the games based on pejorative notions, and low expectancies as to their relevance and usefulness. The authors believe the general lack of sound instructional design principles found in most games destined for the classroom have resulted in a player/learner base that is engaged and entertained, but does not learn the desired content. We further suggest that a growing adversarial relationship seems to be growing among educators regarding the validity of educational games. In this article, the authors present the background behind these and present a case for a design and evaluation rubric that appears to overcome many of the shortcomings in educational games currently on the market. The authors further propose several changes to pre-service and in-service teacher training curricula that should provide opportunities for teachers to become more actively involved in game selection and integration that will allow them to reach their full potential.

Background

The dramatic rise in the pervasiveness of various forms of digital media in our youth's leisure time activities appears to have widened the relevance gap between informal learning and classroom instruction. Although technology always seems to have a significant effect on how people learn, previous advances pale in comparison to the recent changes in social behavior and a new 'sense of place' that Joshua Meyrowitz (1986) envisioned over two decades ago. Meyrowitz predicted that habitual exposure to mediated experiences would democratize the use and acquisition of knowledge and would allow inhabitants living in a mediated world to increase their interpersonal interactions and social learning experiences in non-traditional ways.

Recently, more interactive forms of informal learning experiences have replaced television –the medium of choice during Meyrowitz's day— as the main tool for accessing and acquiring information. The pervasiveness of these sources of edutainment have aggravated the debate as to what constitute the most productive and efficient ways to acquire and retain knowledge between proponents of their use as primary mechanisms to reshape our educational system and traditional educators who have been less than accepting of their validity. In a study sponsored by the Pew Internet & American Life Project, Levin and Arafeh (2002) the authors describe students' preferences for informal learning via electronic media with metaphors as virtual "textbooks", "tutors", "study groups", "lockers" and "backpacks" to (p. iii). The authors also suggest that today's students tend to view the Internet and other electronic media as authoritative resources for all types of living, playing, and learning. It is our position that these predispositions have increased exponentially and they cannot be ignored. We suggest that teachers and educators need gain fuller understanding of how mediated experiences redefine what is relevant to these students, and how they affect information their processing skills and tendencies.

One of the fastest growing elements of informal learning is the use of video games. While their popularity has grown exponentially, we agree with popular culturalists, such as Marc Prensky (2001; 2003) and educators, such as James Gee et al (Gee & Levine, 2008; Shaffer, Squire, & Gee, 2005; Gee, 2003) that games' adoption into K-12 classrooms has been slow. We attribute this slow acceptance to two separate but interrelated phenomena:

- A failure of game designers and developers to incorporate important pedagogic components into the educational games they build.
- A general lack of adoption of video games on the part of

> teachers based on preconceived pejorative notions about their validity, resulting in lowered expectancies as to their usefulness as a learning tool.

We believe that, regardless of how well constructed they are from a ludological perspective, games (especially those marketed as being 'educational') often lack key instructional principles resulting in a player-learner base that is undoubtedly being engaged and entertained, but who are not learning the desired academic content (Kenny, Gunter & Vick, 2006). We further suggest that this shortcoming has only served to reinforce any negative preconceived negative notions about their validity on the part of teachers who are reluctant to adopt games into their classrooms in the first place. We suggest that an adversarial relationship is growing between these already hesitant teachers and those who view the use of video games in educational settings as an anecdote to cure all the ills that they believe the system is suffering.

This antagonistic relationship appears to have been aggravated by alleged comments by some game proponents who have indicated that one advantage in favor of implementing video games in classroom settings is the diminished need for teacher intervention (Prensky, 2003). To the contrary, it has been our own observation that integrating games actually often requires increased teacher intervention.

In this article, we review a study we previously conducted in which we reported to be certain design flaws from an instructional design standpoint in educational games. We couple that analysis with further discussions about teachers' preconceived negative notions about games and cognitive processing preferences discovered in additional studies. We believe that these two phenomena, when taken together, compete as significant, primary factors in video games' less than anticipated adoption in the classroom.

ALIGNING GAME DESIGN WITH EDUCATIONAL PRINCIPLES PROBLEMS WITH CONNOTATIONS AND CONTEXT

Closely aligning game design elements with instructional principles is not as easy as some would have it (Gee 2003; Prensky, 2001; 2003) and presents an interesting set of challenges. Those familiar with instructional design understand that any instructional intervention needs to be based on identifying the need, the learners, and the appropriate method(s) of delivery for the desired educational payload (Morrison, Ross, & Kemp, 2004). We suggest that those who unabashedly promote the use of video games in the

classroom may be doing so based on an incorrect notion that all games always teach something, citing anecdotal evidence that the hierarchical techniques used to create game leveling constructs that loosely parallel equivalent hierarchical instructional practices (Gunter, Kenny, & Vick 2006; Kenny & Gunter, 2007; 2008).

We suggest that educational game design needs to begin with comparing its practices with best practice elements of instructional theory to identify any significant principles that may be missing. This is exactly what we did and reported on in previous studies (Gunter, Kenny, & Vick 2006; 2008). In doing so, we identified what we believed to be a significant confound between the vernacular utilized by game developers and that commonly used by educators. The primary culprit was the differing nuances among the terms *interaction*, *immersion* and *engagement*. To a game designer, *immersion* and

	Stages of Immersion		
Immersed	reciprocal action	Active participation	belief creation
Engaged	reciprocal action	Active participation	
Interacting	reciprocal action		

Figure 1. Immersion Hierarchy (Gunter, Kenny & Vick, 2008, used with permission from the authors)

engagement are linked hierarchically, with immersion being the highest stage (See Figure 1) and refers to both the player's state and that of the content itself. Game designers assume that all players, by the mere fact that they continue playing, are properly interacting with the game. At the 'interacting' stage, players could be simply familiarizing themselves with the rules of gameplay by moving around (i.e., orienting) in the game. Being *engaged* (the second stage on the hierarchy chart) means that that they are acting out and that they are further involved because they are attempting to solve whatever puzzle is being proposed by the storyline so they can move on to the next level in the game. The third stage of immersion describes a situation in which the game has fully enveloped the player's mental capacity with his or her full investment in the fantasy. Belief creation begins at this phase, which we have affirmed eventually translates into knowledge acquisition (Kenny & Wirth, 2009).

For educators, although the ultimate goals are the same, the connotations differ significantly. In the classroom, there is a belief that if a student is *engaged* when he or she is *immersed* in the materials. Rarely are con-

scious distinctions made to describe the two concepts in a hierarchical fashion. Further, when they become involved in formal classroom instruction in which they have little say about the content being taught, students may choose not to participate. It can be hard to differentiate between those who are engaged in an activity but who are not totally being immersed or are engaged in non-relevant content. In a classroom, the assumption cannot always be made that a student, even an engaged one, is motivated to learn the appropriate content.

Games address the act of acquiring facts and figures but mostly this occurs at the gameplay level for the purpose of players becoming successful at moving about in the game. Rather than being an asset that is guarded and retained, this knowledge becomes expendable and may be disposed of once that player progresses to the next higher 'level' in the game. A teacher, on the other hand, expects a selected intervention will support extended and tightly integrated cognition that transforms fact acquisition into higher levels of thought (Gunter, Kenny, & Vick, 2006; Gunter, Kenny & Vick, 2008; Kenny & Gunter, 2007).

Choosing Appropriate Instructional Theories

We agree that video games can thrive in educational settings but only if they are premised on the same educational foundations upon which successful instructional strategies are based. While we did ascertain that, in some cases, educational games were successful both commercially and academically we wondered why there were not more instances of these successes and why they did not consistently and successfully teach academic content. To investigate this phenomenon we empanelled a group of educators and game developers to work together to compare game design methods with instructional design practices to detect any common threads that might exist. The panel first identified four instructional models that it agreed most closely aligned with existing game design practices: Keller's ARCS Motivation Model, Gagne's Nine Events of Instruction (1974), Piaget's Adaptation Model (1969), and Bloom's Taxonomy of Learning (1956). The panel then reviewed the best elements of each model to identify any shortcomings and aggregated them into three major categories that it believed represent the most egregious deficiency. The panel then considered these three in light of the aforementioned confounded views on interaction, immersion, and engagement to come up with its list of six design elements (Relevance, Embedding, Transfer, Adaptation, Immersion, and Naturalization) that

eventually became the foundation of an educational game design and selection model that it believed possessed significant prescriptive power (Gunter, Kenny, & Vick, 2006; Gunter, Kenny & Vick, 2008; Kenny & Gunter, 2007).

Building the Model

The RETAIN© Model was named by assembling an acronym that represents each of these elements. Previously published reviews of existing games demonstrated that the model can be useful in indicating significant shortcomings of even more popular games and pointing out which reinforcement activities should be incorporated when including these games in classroom settings. The mechanics of integrating each of the six elements into the game design and selection process is outlined in Table 1:

Table 1
RETAIN© Model: Summary of Features

Feature	Mechanisms Used
Relevance	Real life relevance is established through the portability of invented stories and the journaling mechanism, which bring game deliverables back into the "real world". Dialog and textual information presented in the game should not be disjointed from the game's objectives. In other words, the information students learn in-game should be relevant to the game world and to the players' targeted objectives.
Embedding	Students will be embedded and engaged through multimodal presentation, endogenous fantasy, and appropriately released gameplay objectives. Embedding should be done in such a way that the learning objectives and fantasy are tightly coupled. In other words, the learning content should be integrated with the fantasy world in a seamless fashion. As challenges are met and puzzles are solved, new areas of the game world open up to keep the player –learner curious and provide an impetus for further exploration.
Transfer	As the academic content is tightly integrated with standard curricular materials, domain transfer will be measured by assessing how well player-learners can recognize and apply newly learned information outside the game environment. After-action reviews (at the end of each mission) developed by the teacher present the player with learning objectives and performance feedback that can be used to improve performance in additional classroom exercises or tests.

Adaptation	Through the journaling feature, the game encourages player-learners to discover new concepts and relationships. They apply their learned knowledge to create new scenarios that apply literacy skills in a new domain and with unforeseen structural consequences. These new products can then be examined by the teacher for weaknesses and possibly used as homework or quiz assignments to further improve targeted skills.
Immersion	In using the role-playing genre of video games, the immersive nature of both a fantastic environment and the ability to create a customizable player-learner's social presence facilitate immersion into the world. Additionally, in order to increase a sense of virtual presence, the heads up display needs to be unobtrusive and the game should use standard conventions for commands that can be learned through pattern recognition (e.g., typing the character 'i' to bring up the inventory screen).
Naturalization	Scaffolded and adaptive dialog support encourage players to gradually use their own skills so that they eventually the knowledge necessary for success in later problems and possibly in other subject areas. For example, comprehension and vocabulary support will not only increase reading skills but also perhaps help with word problems in math and/or understanding problem statements in science.

The overarching principle proposed by this Model centers on the interaction-engagement-immersion triad discussed previously. The Model borrows greatly from the techniques developed by interactive improvisational performers (Kenny & Wirth, 2009). Using game developers' vernacular, we suggest that an educational game that demonstrates the highest form of *intrinsic* (i.e., 'endogenous') fantasy is one in which content to be learned is highly *immersed* in (i.e., relevant to) the game's narrative construct. Algebra word problems in which scenarios are created to establish the need (i.e., relevance) for learning math formulas were an early attempt to do the same thing. Take for example the classic example of two trains leaving a train station that are about to crash. A less successful game attempting to replicate this scenario will be built upon a fantasy line that is more exogenous in nature. A race is devised in which player-learners observe their trains leaving their respective stations and one of the player learner "wins" when he or she gets the most correct answers. The difference lies in how tightly the content is integrated (i.e., immersed) into the game's narrative storyline. In a highly endogenous game, player-learners form an identity with conductor or other characters in the game and they 'become' one of them. The storyline is made more compelling and player-learners 'suspend their disbelief' because something 'bad' (or 'good') will happen to their character based on

how much content knowledge they acquire. This line of thinking correlates strongly to the desired outcomes of situated cognition (Brown, Collins & Duguid, 1989; Lave, 1988) and Self-Determination Theory (Desci, Koestner & Ryan, 2001). In an endogenous game, player-learners imagine being inside the train compelling them to make calculations on the fly in order to win. This connotation of immersion is self-fulfilling.

Educational games in which the fantasy/storyline is added as an extrinsic (i.e. exogenous) element, the desired learning content is integrated in a way in which the game designer can easily exchange the subject matter without changing the fantasy storyline or creating a disruption to the flow of the game. For example, player-learners may be asked to save a princess in distress by answering riddles based on the chemical structure of proteins and the genetic material that is required to code those proteins. In this scenario, the same gameplay design (i.e., 'save the princess') could just as easily be used for mathematics, science, language arts, or other subject matter.

While games based on only an exogenous fantasy or storyline may be fun initially, we suggest that Sweller's (1994; Asgari & Kaufman, 2004) ideas about cognitive load support our notion that the more immersed in the game's fantasy context the content can create deeper cognitive processes because player-learners are more motivated to remain on task and to practice and reuse the content. Practicing and reusing (i.e., scaffolding) are at the heart of retaining information and translating it into knowledge. Cognitive Load Theory assesses knowledge acquisition in terms of working memory and is measured in terms of the degree of effort required to process new information.

Bloom's views on hierarchical knowledge acquisition processing (Bloom, 1956; Cermak and Craik, 1979; Craik & Lockhart, 1972; Krathwohl, Bloom & Bertram, 1974) provide a useful means to categorize and strategize how to integrate academic content into an educational game. Level design in games needs to foster knowledge acquisition of more efficient gameplay as well as desired academic content. Using an endogenous based taxonomical construct for presenting and requiring recall of academic content for player-learners to progress from one level to the next creates an appropriate instructional paradigm. The game designers on our panel admitted that they generally did not consciously analyze this concept because they believed that the level design construct already assumed this role. Requiring that the content be learned and internalized for the players to advance or move among scenarios (i.e., lessons) is paramount and needs to be done in such ways that do not sacrifice the game's ludological (i.e., entertainment-driven) attraction.

One way to encourage ludological gameplay without sacrificing knowledge acquisition is to build into games intended for the classroom systematic opportunities for free play (referred to by game developers as a digital sandbox) that can accompany the game's directed objectives (missions, or mini-quests). The missions can be completed in random order with each leading to additional scenarios that are important for solving each challenge (or academic 'problem'). An educational game could also embed a virtual journal that is automatically updated when quests are received or new challenges are presented. The journal would require player-learners to review what they have done before taking any new actions, thus adding to the game's metacognitive benefit because they are required to revisit previous game actions and choose new strategies based on what they have already accomplished. The journal also becomes an outlet for creativity. After completing each mission, player-learners would be encouraged to invent their own stories based on content they encounter in the game. These storylines can be printed out later and taken home or used in classroom discussions, and/or used as narrative treatments for the machinima exercises (video recordings of game actions as they occur). We suggest that this journaling functionality bridges traditional classroom and in-game learning that is so important because it promotes teacher involvement and provides an opportunity for sharing, discussion, and analysis. Finally, the game should also include planned stops for self-assessment, reflection, and debriefing. When learners debrief they are actually analyzing their meta-cognitive actions and help them reflect on why their actions were successful or unsuccessful. Feedback that is provided in a debriefing encourages transfer (Leat & Lin, 2003).

Future assessments of the model will take place over time and will be the subject of additional research. In the meantime the RETAIN© Model has become the theoretical foundation behind game design classes in a College of Education, a Medical School, and Departments of Digital Media in two major universities. Future assessments of the model will take place over time and will be the subject of additional research.

Empowering Teachers to Adopt Video Games

Regardless of how well games are constructed, the chance that they will be fully integrated into a classroom depends mostly on teacher perceptions and notions. Like other forms of technology, acceptance has been less than anticipated. Even those inclined to adopt technology have faced what amounts to be insurmountable roadblocks thrown in their way. In this section we outline some of the impediments that have hindered adoption of technology by classroom teachers.

Overcoming negative attributions

The desire for educators to use technology in their classroom often conflicts with the practicalities associated with its usage. In a qualitative study of two Silicon Valley high schools, Cuban et al (Cuban, Kirkpatrick, & Peck, 2001; Rice, 2006) reported that, despite ready access to computers, only a handful of their teachers substantially changed their teaching practices to take full advantage. The authors further identified several barriers to technological innovation. Most notably among them were a perceived lack of time, poor technical support, outdated technologies, and time constraints imposed by rigorous class periods (Shelly, Gunter & Gunter, 2010). The authors concluded that the path for integrating any technology in the classroom would be slow and would be riddled with problems caused by impediments placed upon it by a lack of institutional history, poor teacher training, and overly-complicated learning curves.

We agree with those who note that level of adoption of technology is directly linked to teacher's preconceived notions about and preferences for those technologies and the level of use during leisure hours outside the classroom (Shaffer, Squire, & Gee, 2005). In interviews with college students, Squire et al found that preservice teachers were less likely to regularly play video games than those enrolled in other majors. If it is true that teachers as a group do not play video games on a regular basis, then it should be no surprise that they might have difficulty integrating them into their curriculum. These individuals would not have a sufficient basis to integrate the rules of gameplay with their instructional strategies nor could they make proper assessments as to which games might be the most effective. We understand that one does not have to actually like something or be good at it to appreciate its value. If a teacher is not fond of rap music or have a knack for performing it, for example, that does not mean he or she will necessarily dismiss outright its usefulness in their teaching. But making the case for integrating technology might be more complicated. Gee and Levine (2008) stated "to leverage the potential of digital media to transform classrooms and motivate students, teacher must become tech savvy. This does not mean that they have to become as technologically adept as some of their digitally native students. They merely need to gain a basic level of comfort with technical learning and be open to opportunities to gain expertise…" (p. 51).

We agree with Shaffer et al (2004) who noted that the feelings about video games on the part of those now teaching or entering into the practice actually run deeper than simple apathy. The authors point out that many of

those they interviewed were not, in fact, merely neutral, but were negative. We suggest that feelings about technology are mostly based on teachers' expectations for and values associated with it. Value-expectancy theory deals with behavioral selection and holds that behaviors are in response one's beliefs and values and are undertaken to achieve some desired end (Fishbein, 1967; 1968; Fishbein & Azjen, 1975). This function also assesses the degree to which an attribute or behavior is perceived to positively or negatively affect anticipated outcomes (Palmgreen, 1984).

Although value-expectancy explains much with regards to media use and gratification, we realize that behavioral motives are also guided by social circumstances. Views on the part of one's peers as to the usefulness and effectiveness of something weigh heavily on that individual's own views and willingness to take risks. We agree with Jary & Jary (1991) who first noted that if technology (in this case 'video games') are not generally accepted as legitimate instructional tools by teachers as a group, then the chances increase of them failing as an intervention. While shared beliefs certainly influence the behaviors of teacher peer groups, there is enough evidence to support the idea that these same beliefs will influence student outcomes. In his pioneering work, Christopher Bache (2008) explored the dynamics of this form of collective consciousness in the classroom. He suggests that teachers are capable of invisibly radiating unintentional, subtle positive (or negative) influences on their students. For games to reach their potential, the collective consciousness of teachers regarding video games needs to be transformed. Once a decision has been made to utilize games, both teachers and administrators need to become positive about their eventual success or they are certainly doomed to fail.

It should not be surprising that educators' current attitudes towards games are generally less than positive, especially in light of the lack of empirical evidence demonstrating the fact that most games are educationally ineffective and have suffered from a less than anticipated adoption rate. In a recent study conducted with preservice teachers enrolled in an undergraduate technology class for educators, Kenny and McDaniels (2009, in press) expressed a generally negative attitude towards games when first interviewed. Less than 60% stated that they played video games regularly, as compared to the nearly 80% of those in the same age group who, according to media and technical reports, respond positively to this question (DFC Report, 2004; Derouin-Jessen, 2004; Entertainment Software Association, 2008; NPD Group, 2008; Slagle, 2006). The fact that these same individuals significantly changed their minds towards games after only one directed gameplay situation may or may not be significant. While one instance can-

not be generalized, it does point to the fact that preconceived notions about an activity do interfere with one's initial judgments about that activity. We suggest that finding the underlying causes for these preconceived notions is key, especially if a teacher attributes his or her negativity to unfamiliarity and/or peer-group think.

These findings suggest that changes might be needed in teacher training programs that will help ameliorate these preconceived notions about games. We cannot expect that the many teachers who do not play games or who have preconceived negative notions about them to be able to make proper attributions about their usefulness as a classroom tool. For teachers to more widely accept, adopt, and integrate educational games in their classrooms, pre-and inservice programs need to:

- overcome these negative notions about games by demonstrating practical evidence that games can be potentially effective.
- show cause that using well-designed educational games do not disturb desired critical thinking processes or learning goals.
- instill self-efficacy about gameplay by empowering them by teaching them about the nature of games and providing resources to support their use.
- show them how to gain trust and support from their administration.
- teach them how to become part of the decision-making process when selecting the games that meet specific classroom accountability standards.
- develop a curriculum that promotes an understanding of the limitations of current games and how to overcome those limitations.
- Create strategies on how to integrate specific, content-based standards.

In short, we believe that a major roadblock to a successful implementation of video games in educational settings is the failure of their proponents to recognize that the success or failure of any proposed intervention correlates directly to the expectations and perceived value/benefit on the part of the integrating teachers, who largely control what and how their students learn (Hanushek, Kain & Rivkin, 1998; Shelly, Gunter & Gunter, 2010). Making sure we recognize the key role they play is the first step. The world of education has higher accountability stakes than ever before and teachers feel the need to make sure their students learn in unique and motivating ways.

Summary & Conclusions

It is up to classroom teachers to insist that best practices in teaching and learning are followed in any games designed and developed for classroom use. Teachers must also be allowed to make decisions about the games they select as to whether they will be supplementary to their own instruction or vice versa. Informed decisions as to the sources of information in the classroom can only be accomplished when teachers' confidence is increased in them by way making games an integral part of teacher training programs. Regardless of how sound games are educationally, training programs need to be redesigned to include activities that introduce teachers to games on a more inclusive basis. This means that these programs will need to include courses or modules in the theoretical underpinnings of gameplay, on how to evaluate and integrate game technologies, and more information on the types of learning that they can expect as a result of their students playing games in their classrooms.

For teachers to fully adopt games into their curriculum they need a good foundation and understanding of games and the instructional strategies built into them that teach the specific content that parallels curricular objectives. Based on the skills necessary for the 21st century, there is an expectation by society that a seamless integration of technology will exist in all phases of our lives, including education. No one argues that technology is necessary to our future or that educators must embrace those technologies into their subject areas. Research has shown that properly integrated technology by qualified and caring teachers can significantly enhance student learning, increase attendance and graduation rates, improve test scores, and motivate students to want to improve themselves (Mitchell and Gunter, 2004). Integrating technology within the curriculum facilitates change in instructional techniques and encourages more student-centered learning (Robyler, 2009). Unfortunately, even a dramatic increase in purchasing of technology has not improved student achievement at many of our nation's public schools. The primary reason cited is a lack of effective professional development and teacher training (Gunter, 2008).

For their part, attempts to change teacher's impressions of the validity of video games as an instructional tool will be resisted unless subtle but significant changes are also built into the instructional constructs of the games themselves. If educational games are to support the acquisition of facts and help a player-learner translate those concepts into higher levels of thought involved with deep cognitive processing, they must be designed to foster this transformation without losing their ludological roots. In short, educa-

tional games must continue to do what they do well but also incorporate the same best practice factors as any other effective instructional activity. A comparative analysis of the prospective elements making up those activities is made more difficult because of confusion of terminology and a false sense on the part of proponents of educational games that all games by their nature teach.

We believe we have identified six key design principles we deem are shaped by effective design theories and practices common and relevant to both domains. First, the games must present desired content in such a way that is relevant and motivating to player-learners and previously introduced content. In order to become fully motivated, game designers need to assure relevance of games to specific content areas, as well as create the right kinds of challenges and opportunities for success within the confines and time limits imposed in formal classroom structures.

A well-developed educational game that simultaneously and fully immerses the learner into the context and the learning content very closely parallels the constructivist approach to learning in which learners become actively engaged in the construction of his or her own learning. In spite of all these impediments, we do believe that video games are well positioned to become a lynchpin for educators and can revolutionalize our educational system. The conundrum faced by game developers is that, while these qualities will result in effective learning, incorporating them causes potential leveraging issues. A correctly developed game may not be easily used in multiple circumstances without considerable programming changes. This may explain why, to date, very few educational games exist that follow these precepts. Until companies can find a way to follow them in economically feasible way, we need to settle for the fact that, perhaps, video games may never reach their full potential and that teachers will continue to be reluctant to utilize them in their classrooms.

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