Can Education and Psychology Join Forces

The Clash of Benign and Malign Learning from Computer Games

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> Contrasts like explicit versus tacit are often brought to the fore by boundary encounters. Any practice – even the most verbal – will have tacit aspects that are revealed by demands outside its regime of competence (Wenger, 1999: 140).

There seems to run an invisible line of demarcation between two groups of researchers interested in the effects of computer games. This article highlights some of the tacit assumptions in approaching computer games either from an educational or a psychological perspective, leading either to an overall utopian or an overall dystopian perspective, respectively. Educational and psychological are potentially misleading labels, but this is an attempt to name communities without a name. It is doubtful whether any researchers fit exactly within one area, but indulge me and bear with the abstraction, as it highlights some incongruities in research on potential learning from computer games.

Initially, an example can clarify how the educational perspective and the psychological perspective differ in their approach to computer games: John and Peter are playing *Counter-Strike* online against two Americans. John is taking a shortcut to get around the Americans and snatches some hostages while Peter keeps the opponents busy. However, the opponents are not tricked and Peter gets pinned down in a tunnel. Peter shoots one of the Americans several times, but gets no critical hits and he is getting low on health, as the American guy has hit him for the third time. He is desperately in need of help and hiding behind a box, so John can come and help. John arrives just in time and with double fire power they can extinguish one of the American players. This comeback calls for congratulations. However, the last American player is not about to give up. He charges them from the back and kills Peter with his first shot and John when he fires his fourth series. Peter and John didn't even see where the last American was coming from.

In a classic behaviourist perspective, we can appreciate what is actually learned from the above game experience by drawing on the concepts of operant conditioning, classical conditioning and habituation (Gleitman, 1995). These concepts basically address how actions are reinforced, leading to learning certain actions. Although behaviourism is far from capable of explaining the full scope of learning experiences, it is useful for illustrating the differences between educators and psychologist in interpreting the above game experience. Looking at the above game experience, a number of interpretations of reinforcement and habituation are possible, depending on the initial perspective. From a psychological perspective, we would note the conditioning of headshot as a reinforced behaviour, because it leads to rejoicing. There is also reinforcement of shooting as problem resolution and habituation to violence, as this is present in the game experience. However, an educational perspective would appreciate the conditioning of cooperation in winning the game, the lack of reward for not staying alert and conditioning of information as important for winning.

The possible interpretations grow more complex as players engage in hours of play in a broader play context, which makes it harder to determine the actual outcome of a game experience. It is hard to determine what players are actually learning from computer games, but if you insist on one of the interpretations above, as is often the case, you will be sure to

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get a one-sided answer. Most popular computer games have different elements and are often not merely malign, because such games appeal to a limited target group. Although on the surface conflict is an important game mechanism, many computer games include a social aspect, and this is becoming increasingly evident in research (Jessen, 2001).

Based on their initially different approaches, the educational and psychological perspective will produce quite different research designs, preferring studies from their own perspective and ultimately determining what learning outcome is under investigation. This effect of perspective is supported if we look closer at educational research on computer games as compared to psychological research in the same area.

Educational Perspective

It has been suggested that there is a wide range of learning opportunities in computer games, for example in math, history, science, diabetes, problem-solving, urban planning or medieval diplomacy. In computer games, players can acquire or construct (depending on the theoretical starting point) contents, skills and attitudes by mastering the game world that from the outside may look relatively simple. Playing a computer game is fast-paced, skill-driven, flexible, analytic, engaged, social and requires a range of competences (Betz, 1995; Brown, 1997; Egenfeldt-Nielsen, 2003; Grundy, 1991; Jenkins & Squire, 2003).

The educational perspective typically approaches computer games with curiosity, interest and eagerness, with a preference for adventure games. At the recent conference Education Arcade 2004, the educational perspective was quite apparent. Educators want to harness the success of computer games among new generations for use in their own educational practice. Deeply enrooted in them is a feeling that children spend all this time playing computer games that have an educational potential (Facer, 2003; Gee, 2003; Prensky, 2001).

Although there is an implicit preference for adventure and strategy games, educational researchers generalize the qualities of computer games to all game genres. The educational perspective ignores the consequences of its own educational thinking and findings on the broader societal question of anti-social computer games[1]. Anti-social computer games can be characterized as containing what from a societal perspective is inappropriate material in the form of contents, skills or attitudes. Still, these computer games are not considered problematic, because the educational perspective favours a certain interpretation of playing computer games, as demonstrated in the initial example in this article, and the studies referred to above also adhere to such interpretations. However, in any of the studies above, you can find malign as well as benign learning potential in computer games. In medieval diplomacy, you may learn that survival is a necessary part of the game, but you may also learn that manipulation and treachery are acceptable. In urban planning, you may end up thinking that taxes cannot be higher than 16% because the game used is based on American society, or that building a police station in a neighbourhood will reduce crime – both problematic learning outcomes from an educational perspective. In some sense, all of the outcomes above are possible depending on the situation, player and game. Still, most educators fail to make this link, insisting on the benign interpretation[2].

It is seemingly impossible for educational researchers to both view computer games as benign activities for education and to approach computer games as malign. This is true even though some commercial computer games obviously adhere to the anti-social category, as illustrated by the increasing number of games rated as "mature" during the past 5 years (Taylor, 2003).

Psychological Perspective

From a psychological perspective, on the other hand, it almost seems inconceivable that mainstream computer games should be useful for educational purposes, and the focus is almost exclusively on violent games. There is little interest in the learning outcomes from other computer games, unless we are talking about gender or race stereotypes. This approach is well represented in the latest special issue of Journal of Adolescence. Even though the editors attempt to broaden the scope, the issue remains focused on problematic learning from computer games. As the editors (Anderson, Funk, & Griffith, 2004: 2) say "Not surprisingly, most of the papers we received focused on effects of exposure to violent video games". They did try to get other contributions, but the distance to the educational community meant that no educators answered the call for papers. This is true despite the fact that educators' interest in computer games is probably at its most active point in years, with new initiatives like the Serious Games and Education Arcade, gathering 200+ participants at conferences dedicated mainly to the educational potential of computer games.

Considered in a stereotyped fashion, the psychological perspective is wrapped up in a view on

computer games as malign activities that lead to aggressive thinking and real-life asocial behaviour. From a psychological perspective, it seems well documented that computer games will lead to aggression, resulting in asocial behaviour and real life violence.[3] Psychologists are not about to suggest that computer games in general may have benign effects, but stay focused on the problems. There exist few studies from this tradition that actively investigate benign effects, with the work of Durkin and Barber (2002) as an interesting exception – this study looks at the psychological effects of all computer games. Starting from a more balanced position, they conclude that computer games within some areas are benign.

In general, the psychological perspective entertains quite a narrow approach to what we can learn from playing computer games, thus closing down the pursuit of certain research paths.

The educational perspective and psychological perspective are worlds apart, and still they both ultimately deal with what we can learn from computer games. Often they draw on the same basic theoretical assumptions i.e. studies on health games have a grounding in social learning theory, cognitive theory and behaviourism, similarly with the design fundamentals of the widespread edutainment titles (Brody, 1993; Lieberman, 1997; Vandeventer, 1997).

There are different reasons for this lack of engagement with the opposite perspective; on the whole these reasons are rather unscientifically motivated. First of all, researchers within each perspective simply conceive of computer games differently. The psychological perspective views computer games as worrying, whereas the educational perspective views them as exciting. The psychological perspective is constantly looking for the dangers and risks associated with computer games, and constantly looking for new ways to establish and construct this link. On the other hand, the educational perspective shows no less ingenuity in its attempts to prove the educational benefits of computer games. Second, a broadening of scope complicates things quite considerably for both perspectives, as it would imply a more complex object of study and constantly require researchers to be open to a wider range of potential set-ups, hypothesis and explanations. Expressed simply, it would mean a lot of extra hard work and complicate research designs. Third, it would mean venturing into strange and hostile research areas from which no-one can be certain to return unchanged. The results from educational research on computer games are not compatible with the results from psychological research on computer games with respect to the benign and malign effects.

So where does that leave us? It leaves us with a new challenging task that is more a question of human engineering than scientific problems – at least in getting the communication started. People always perceive change as dangerous, and researchers are hardly an exception[4]. Engaging in another research community and being prepared to meet seemingly impossible tacit assumptions, inductions and generalizations we are not used to constitute challenges. This applies to both sides.

Building a Bridge…

I do not harbour any grandiose fantasies that I can bridge these two communities, but I will point to a few concrete intersections to perhaps clear the way a bit. The educational perspective has consistently found learning outcomes to be less straight forward than one might initially think. Studies show that players will often not learn more than playing a computer game, even though a computer game may involve extensive geographic knowledge and thinking (e.g., Grundy, 1991). What I find intriguing is that educators have a very hard time using computer games for education, owing to at least three key characteristics of computer games and learning. These problems are not similarly perceived as barriers in studies within a psychological perspective.

- **Learning and play**: When educators try to use computer games to teach students about content, skills or attitudes, they experience problems with the play context. The students perceive the computer game as play, and will not engage in it as learning practice. They see what happens in computer games as a fictional world with little relevance to the outside world (Jillian, Upitis, Koch, & Young, 1999; Squire, 2004).
- **The hard transfer**: Educators simply cannot seem to get the knowledge learned in computer games to take hold in other contexts. Educators fail to find indications that knowledge, skills or attitudes can simply transfer to everyday contexts. This may be achieved if the game experience is the target of deliberate instruction. When you learn about saving electricity, the teacher should make explicit links to other areas by extending the game examples and encouraging students to engage in actions at home, based on the experiences (Danielsen, Olesen, & Sørensen, 2002; Klawe, 1998; Lieberman, 1997; Squire, 2004)

- **Individual vs. social**: Educators increasingly acknowledge that to facilitate a computer game's learning potential beyond the immediate context of playing, you need to situate it in a social context. Players need a surrounding environment to support learning about a certain topic in a computer game. This can be done through explicit links from teachers or parents, peer discussions concerning the game, and direct integration between the computer game experience and everyday life (Squire, 2004). Such mediation through a social context is often excluded in studies conducted by psychologists.

On the other hand, the psychological perspective has established that the link between anti-social computer games and aggressive behaviour is a fact. How computer games can have a direct effect on behaviour condemned by society and everyday situations should intrigue both educators and psychologists – especially considering the above-mentioned problems associated with using computer games for learning. Less well-documented findings point to even more interesting implications for educators, namely suggestions that you can learn to kill people through playing computer games, shape people's conception of the surrounding world, and desensitivize people to violence – all extremely powerful learning experiences (Anderson, 2004; Egenfeldt-Nielsen & Smith, 2004; Grossman & DeGaetano, 1999)

If the above findings are true they hold great potential, for it suggests that we can change the impact of computer games from malign to benign. However, when we look closer at the results from studies with a psychological perspective, it is not at all clear how this link is established or what the theoretical explanations are, at least not if we want to harness this potential for educational purposes. From a psychological perspective, it seems that we should just ensure that computer games are not anti-social in a broad sense – build them and they will play them – computers influencing players automatically, effectively changing the future society. However, this is not compatible with the research conducted by educators. The explanation for this incompatibility between educational and psychological perspectives may arise from differences in the type of learning and explanatory models chosen, which should be examined closer in future research. One initial difference in learning focus is the psychological focus on attitudes and emotions.

If we look at the strongest learning claim from a psychological perspective, it seems that computer games are capable of producing exciting emotions, altering feelings, and changing attitudes in players. This area is neglected from an educational perspective, perhaps due to early research in the 1960s showing that it is hard to learn feelings, attitudes and emotions through traditional games. According to this research, players' changes in attitudes, feelings or emotions after extensive playing are very limited. Yet when such changes occur, the teacher's role is critical. In one of the most well-known games, called *Ghetto*, you expressly try to play out the different roles, feelings, and positions related to living in a ghetto. There is, however, no evidence of transfer to real life from these studies, although the students are quite impressed by and interested in this new teaching form. A closer examination of the psychological perspective may bring us closer to solving these problems, but that is beyond the scope of this article (Boocock & Schild, 1968; Greenblat & Duke, 1981; Seidner, 1975).

Hopefully, some of the inconsistencies between viewing computer games as benign and malign have become clear. I have not tried to give answers, but to challenge assumptions, pose questions and open new paths for research. Keep in mind that you can learn a lot by considering an opposing perspective, and that your assumptions are more a matter of choice than of careful analyses and scientific awareness.

Notes

1. I have not found a single example of this in my review of more than 100 research articles on educational usage of computer games, and the same amount within computer games and risks.
2. Some exceptions are beginning to occur (e.g., Squire, 2004).
3. For a more elaborate presentation of this perspective, see Egenfeldt-Nielsen & Smith (2004).
4. See *Action Science* by Chris Argyris for an analysis of barriers to change and learning in this specific perspective.

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