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Pre-Service Teacher's Attitudes towards Computer Games

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Abstract

This pilot-study begins to examine pre-service teachers attitudes towards computer games. In the past few years, articles have remarked that when kids who have played games become classroom teachers, games will be more accepted in the classroom. This pilot-study, of a small population of pre-service teachers, showed that over 95% had played computer games before college, over 80% still played computers games today periodically, and 15% played computer games more than 8 hours a week. The factors that emerged from the attitude instrument showed that prior experience with games did not ensure positive attitudes towards games. This presentation will discuss the pilot-study outcomes as well as describe the creation of the computer gaming inventory that is measuring use and attitudes towards games.

Introduction

This presentation examines pre-service teachers' attitudes towards computer games. In the past few years, several articles have remarked that when students who grew up playing computer games become classroom teachers themselves, computer games would be more prevalent and accepted in the classroom (Aguilera & Mendiz, 2003; "Class, Take Out Your Games", 2006; Deubel, 2006; Rice, 2006). Our pilot-study of a sample of pre-service teachers enrolled in a North Texas university showed that over 95% had played computer games before college, and over 80% periodically still play computers games today. However, the factors that emerged from our inventory showed that prior experience with games did not necessarily predict positive attitudes towards games. A better predictor was how frequently they currently play computer games.

We will discuss the development of the Computer Gaming Inventory (CGI) and talk about its role in a pilot-study that looked at pre-service educators and their computer gaming attitudes.

Computer Gaming Inventory

The Computer Gaming Inventory was created in the Spring of 2006 at the University of North Texas as a result of discussions with Educational Computing doctoral students. There was a need to measure gaming use and attitudes, but there was little success finding an existing instrument in the literature. One recent attempt to measure computer game use and attitudes in a small sample of college students was the qualitative survey performed by Pew Internet and American Life Project (Jones, 2003). However, we desired a quantifiable questionnaire that would be easy to deliver to hundreds of college students. Therefore, we adapted elements from the Pew study, and then added questions based on our content expertise as well as demographic questions, to create our Computer Gaming Inventory. The resulting instrument is a ninety-six question survey consisting of two sections: (1) computer gaming types and frequency (66 questions), and (2) attitudes towards computer and video games (30 questions). Although the CGI seems lengthy, we found that students could take the survey in less than 15 minutes.

We performed a preliminary run of the instrument with eighty-six students in the College of Education at the end of the Spring 2005 semester. These initial participants were undergraduate and graduate students studying Computer Education and Cognitive Systems at a North Texas university. We focused only on the analysis of the 30 questions regarding computer gaming attitudes. Using exploratory factor analysis, we found six latent constructs concerning the participants' attitudes towards computer gaming. Figure 1 shows the scree plot from the factor analysis.

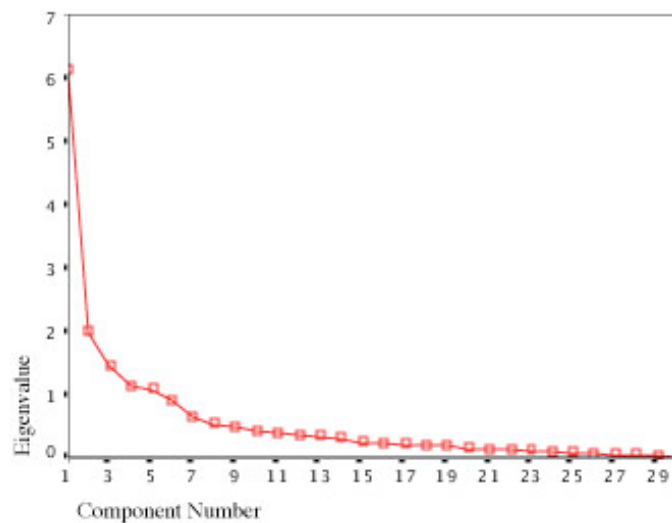


Figure 1 – Scree Plot

We examined the questions loading on each factor and subsequently labeled the underlying constructs:

- F1: Gaming impact/interference (5 questions, Cronbach's alpha = .897)
- F2: Computer gaming enjoyment (5 questions, Cronbach's alpha = .863)
- F3: Friendships related to computer gaming (3 questions, Cronbach's alpha = .913)

- F4: The importance of fidelity/features in computer games (5 questions, Cronbach's alpha = .832)
- F5: Gaming as a diversion (4 questions, Cronbach's alpha = .798)
- F6: Attitudes towards computer games (3 questions, Cronbach's alpha = .841)

Pilot-Study

After the initial validation of the instrument was completed, we began a study of the computer gaming attitudes of pre-service teachers. We hypothesized that pre-service teachers who previously played computer games would have a more positive attitude towards using computer games in the classroom. To measure both computer game use and attitudes, we used our Computer Gaming Inventory.

Sample

We asked students taking the "Computers in the Classroom" pre-service course to participate in the study. The required course focuses on the instructional uses of computers and computer applications in education, as well as the overall integration of technology in the secondary classroom. Forty-two undergraduate students completed the instrument.

Method

We administered the full CGI instrument once at the end of the semester using a web-based survey tool. We compiled descriptive statistics and performed discriminant factor analysis.

Results

For this study, the participants took the entire inventory, but we only analyzed the questions regarding attitudes towards computer gaming. And for this brief analysis (presentation proposal only), we will only touch on some of the more important findings. As expected, a majority (71.4%) of respondents had no K-12 teaching experience. Also expected of a pre-service course, 97.6% of respondents were female. The mean age of the group was 20 years old, and 97% of students were enrolled full-time. All students were undergraduates. A large majority (90%) owned a computer, and 100% of the students can be classified as computer literate from their responses to the use of computer and Internet applications on a regular basis (e-mail, blogs, applications, etc). A majority (81%) of students played their first computer games in elementary school, and 11.9% played their first computer games in junior high or high school. Only a small number (4.8%) reported that they never had played a computer game. Regarding current gaming habits, 57% reported that they are presently playing at least two computer games, 16.7% reported that they are playing three or more computer games, and only 11% reported that they currently playing no computer games. With a sample comprised of almost all females, it is not surprising that only 31% reported that they play first-person shooter games. However, 95.2% reported that they play card games.

The factor analysis indicated the following significant items using Pearson correlation (r) between use/frequency questions and the six latent factors, as listed above:

- The number of hours a week a student played computer games was likely to indicate that they enjoyed computer games [F2] ($r = .443, p = .005$), that they felt features were important to play [F4] ($r = .388, p = .011$), and they used games as a diversion [F5] ($r = .383, p = .012$).
- When a student started to play computer games is an indicator of the importance of features [F4] ($r = .373, p = .015$) and if they use games as a diversion [F5] ($r = .305, p = .049$).
- How often a student plays a computer game is an indicator of their enjoyment of computer games [F2] ($r = .423, p = .007$).
- If the student plays video games is an indicator of their enjoyment [F2] ($r = .423, p = .007$).
- If the student plays online games is an indicator of interference [F1] ($r = .3872, p = .015$), enjoyment [F2] ($r = .334, p = .038$), friendships [F3] ($r = .365, p = .017$), features [F4] ($r = .309, p = .046$), diversion [F5] ($r = .344, p = .026$).
- If the student plays cell phone games is an indicator of enjoyment [F2] ($r = .375, p = .019$) and diversion [F5] ($r = .372, p = .035$).
- If the student plays single-player role-based games is an indicator of interference [F1] ($r = .407, p = .007$), enjoyment [F2] ($r = .400, p = .012$), friendships [F3] ($r = .363, p = .018$), features [F4] ($r = .470, p = .002$), diversion [F5] ($r = .465, p = .002$).
- If the student plays multi-player role-based games is an indicator of [F1] ($r = .408, p = .007$), enjoyment [F2] ($r = .419, p = .008$), friendships [F3] ($r = .357, p = .020$), features [F4] ($r = .392, p = .010$).
- If the student play adventure/puzzle games is an indicator of diversion [F5] ($r = .368, p = .016$).
- If a student plays games for more than one hour at a time is an indicator of interference [F1] ($r = .304, p = .050$), enjoyment [F2] ($r = .415, p = .009$), friendships [F3] ($r = .307, p = .048$), features [F4] ($r = .338, p = .028$), diversion [F5] ($r = .329, p = .033$).
- If the student listens to music while they play games is an indicator of diversion [F5] ($r = .329, p = .036$).
- If the student plays games as a brief distraction from doing other work is an indicator of friendships [F3] ($r = .363, p = .018$), features [F4] ($r = .470, p = .002$), diversion [F5] ($r = .465, p = .002$).
- If the student play games while instant messaging is an indicator of enjoyment [F2] ($r = .385, p = .016$), diversion [F4] ($r = .348, p = .024$), and attitude [F5] ($r = .436, p = .004$).
- If the student play games while watching tv/movie is an indication of enjoyment [F2] ($r = .331, p = .045$), friendship [F3] ($r = .347, p = .028$), features [F4] ($r = .432, p = .005$), diversion [F5] ($r = .419, p = .007$).

Discussion

While nearly all students (95.2%) had been exposed to computer games before college, only a few currently played three or more games on a consistent basis. Future studies need to determine why students stopped playing computer games. Students that played computer games in the past, but were not currently playing several computer games on a regular basis tended to play games periodically only as a diversion. Of the currently active computer gamers in this study, many were active in online games (MMORPG). These students were also the ones that said they used computer games in regards to friendships. Finally, these active gamers tended to have better attitudes towards computer gaming in general.

Conclusion

This pilot-study is the first step towards creating a comprehensive instrument to measure computer gaming use and attitudes. This pilot-study shows that while the per-service teachers examined had been exposed to games, they were not regular computer gamers. The development of the Computer Gaming Inventory (CGI) will help researchers reliably measure several factors regarding students' uses of computer games and their attitudes towards them. Our next step is to study currently active teachers, to use the CGI to determine their attitudes towards computer games, and ultimately establish their acceptance levels of games in educational settings. Hopefully, these results will allow us to definitively answer the question posed in many articles on the educational use of computer games: Since students played games growing up, will they will be more accepting of games in the classroom when they themselves become teachers?

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