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The Validity and Reliability of the Turkish Version of the New Computer Game Attitude Scale for Adolescents

Ahmet Akın[a]*, Mehmet Emin Turan[a], Yunus Altundağ[a], Umran Akın[a]

[a] Sakarya University Psychological Counselling and Guidance Department, Sakarya 54300, Turkey

Abstract

The aim of this research is to examine the validity and reliability of the Turkish version of the New Computer Game Attitude Scale (Liu, Lee, & Chen, 2013). Participants were 312 high school students (183 were female and 129 were male) from Bolu Province. The results of confirmatory factor analysis indicated that the three-dimensional model was well fit (x^2= 562.98, df= 198, RMSEA=.077, NFI=.90, CFI=.94, IFI=.94, RFI=.88, GFI=.86, and SRMR=.050. The internal consistency coefficients of three subscales were .89, .84, and .90, respectively. Overall findings demonstrated that this scale had high validity and reliability scores and that it may be used as a valid and reliable instrument in order to assess self-knowledge levels of individuals.

1. Introduction

Playing games is a very important activity for mental and social development (Amory &, et al., 1999). Gaming is an interactive, social experience based, highly stimulating process and gaming paradigm converges the real with the virtual. Playing game is a voluntary activity in cognitive, and psychological development especially during early childhood (Rieber, 1996). Integrating game with learning process is not a simple task (Bonanno & Kommers, 2008). Can the technological development help us in this area?

Technology in our lives is growing gradually (Cagiltay, 2007). Computers with superior graphics systems has allowed producing perfect computer games with help of game software. Computer game industry has developed different types of games (simulation, first-person adventure, fantasy role playing, strategy etc.). Computer game players entered into virtual worlds filled with graphics, stories, sound and video (Amory, Naicker, Vincent, & Adams, 1999). Quick development of computer network technology has brought the prevalence of game playing

Corresponding author:* Tel: 00905057684841, Fax.:00902646141034
E-mail adress: aakın@sakarya.edu.tr

and online game playing among adolescents (Chou & Tsai, 2007). Despite the fact that technological progress and the prevalent using of information and communications technology for communication, knowledge construction, and information retrieval, using digital games for learning can cause mixed (positive or negative) consequences. For this reason, beliefs of teachers and students about digital technologies and computer games may determine the future of the technology using in education (Bonanno & Kommers, 2008). Researchers increasingly take into account the efficient use of the technology as a significant determinant of productivity, competitive advantage, and individual competency (Torkzadeha & Dyke, 2002).

Computer games are very popular spare time activities for many students (Buchman & Funk, 1996; Can & Cagiltay, 2006; Durkin & Barber, 2002; Subrahmanyam, Greenfield, Kraut, & Gross, 2001; Yelland & Lloyd, 2001). Simulators and computer games increase learning through experimentation, visualization, and creativity of play (Betz, 1995). Individuals' attitudes and future plans for using computer games in education are very important for any possible developments in this field. In the literature there is limited information that opinion of the students and educators about the use of computer games in education (Can & Cagiltay, 2006). The developed digital instruments in education helps the construct of instructional systems that incorporate limitless forms of visual and verbal information for presentation and feed-back (Rieber, 1985).

Computer games have been suggested as a potential learning instrument by educational researchers (Betz, 1995; Gee, 2003; Kafai, 1995; Ke, 2008; Rieber, 1996; Squire, 2003) and game developers (Aldrich, 2004; Baker, Navarro & Hoek, 2005; Becker, 2001; Cagiltay, 2007). After the prevalence use of computer and digital technology, different researches actualized concerning attitudes towards computers, computer games and the relationship between attitudes and behaviour (Bonanno & Kommers, 2008). Therefore computer game attitudes are very important construct for further researches that use computer game as an educational tool.

1.1. New Computer Game Attitude Scale (Liu, Lee, & Chen, 2013)

New Computer Game Attitude Scale is a self-report scale with 22 items rated on a 4-point scale (1= strongly disagree, 4= strongly agree). Factor analysis has indicated the presence of both an overall computer game attitude factor and three distinct subscales; cognition, affection, and behavior. (Liu, Lee, & Chen, 2013). Internal consistency reliability coefficients of the scale were .82 for cognition subscale, .74 for affection subscale, and .82 for behavior subscale. The aim of this research is to adapt the New Computer Game Attitude Scale to Turkish and to examine its psychometric properties.

2. Method

2.1. Participants

Participants were 312 high school students 183 were female and 129 were male) from Bolu Province, Turkey.

2.2. Procedure

Primarily the New Computer Game Attitude Scale was translated into Turkish by four academicians. After that the Turkish form was back-translated into English and examined the consistency between the Turkish and English forms. Turkish form has reviewed by seven academicians from educational sciences department. Finally they discussed the Turkish form and along with some corrections this scale was prepared for validity and reliability analyses. In this study confirmatory factor analysis was executed to confirm the original scale's structure in Turkish culture. As reliability analysis internal consistency coefficients and the item-total correlations were examined. Data were analyzed by LISREL 8.54 and SPSS 13.0.

3. Results

3.3. Reliability

The internal consistency coefficients of three subscales were .90 for cognition subscale, .84 for affection subscale, and .90 for behavior subscale. The corrected item-total correlations of New Computer Game Attitude Scale ranged from .07 to .81.

Table 1. New computer game attitude scale corrected item total correlations

Mad. No	r	Mad. No	r
1	.62	12	.69
2	.71	13	.75
3	.64	14	.81
4	.63	15	.80
5	.67	16	.77
6	.60	17	.73
7	.52	18	.77
8	.72	19	.71
9	.52	20	.07
10	.77	21	.76
11	.67	22	.68

3.2. Construct Validity

The results of confirmatory factor analysis indicated that the model was well fit (x^2= 562.98, df= 198, RMSEA= .077, NFI= .90, NNFI= .92, CFI= .94, IFI= .94, RFI= .88, GFI= .86, AGFI= .82, and SRMR= .050). Results of the factor analysis are shown in Figure 1.
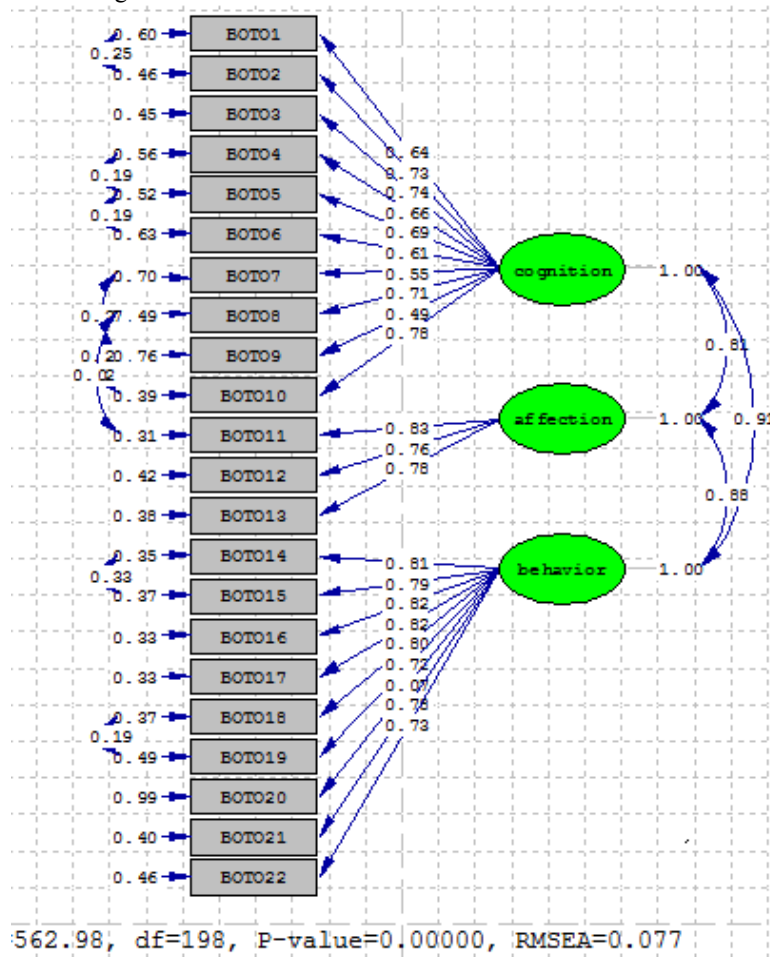

Fig. 1. New computer game attitude scale path diagram and factor loading

4. Discussion

The purpose of this study was to translate the New Computer Game Attitudes Scale into Turkish and examine its psychometric properties. The results of confirmatory factor analysis indicated that the model was well fit. Thus, it can be said that the structural model of the New Computer Game Attitude Scale which consists of three factors was well fit to the Turkish culture. Overall, findings demonstrated that this scale had high validity and reliability scores (Büyüköztürk, 2004; Tabachnick & Fidell, 1996; Tezbaşaran, 1996) and that it may be used as an efficient instrument in order to assess computer game attitude.

Data that were used for validity and reliability of New Computer Game Attitudes Scale were collected from only high school students from Bolu Province. Further studies that will use the New Computer Game Attitudes Scale and examine the concurrent validity and test-retest reliability are important for scales' psychometric strength.

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