



Relation of playing types of PC games with self-regulated learning strategies and motivational beliefs among male students of 3rd grade of high school

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ABSTRACT

This study aims to investigate the relation of playing types of computer games- sports, warship, training and strategic- with self-regulated learning strategies and motivational beliefs among male students of 3rd grade of high school. The methodology of this study is descriptive of correlation type. The samples include 260 students from high schools of different districts of Sabzevar selected by stratified random sampling among different fields of study- basic science, mathematics and liberal arts. To evaluate the self-regulated learning and motivational beliefs strategies, there was used of Motivated Strategies for Learning Questionnaire developed by Pintrich & De-Groot (1990) and for evaluating the computer games, there was used of two factors, including time spent for playing games per week and type of computer games- sports, warship, training and strategic. For data analysis, there was used of descriptive statistics as well as inferential statistics including Pearson Correlation Coefficient and Regression. Results indicated that there is generally no significant relation between time spent for types of PC games- sports, warship, training and strategic, with self-regulated learning and motivational beliefs strategies; while games are studied separately based on their type, there can be seen a significant relation between time spent for training PC games with self-regulated learning and motivational beliefs strategies, while there is no significant relation between time spent for other types of PC games- sports, warship and strategic with self-regulated learning and motivational beliefs strategies.

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Introduction

The best and most effective way of training the children and adolescents is that they must be provided with trainings based on their personality development and their mentality and this is possible by playing. By their age, children are ready to learn. Training the children is possible by selecting suitable activities in proper time, i.e. when a kid is playing, one can train him/ her by entering into his/ her game; because play is the most natural tool for training the kids. By playing, kid can be trained and discovers new things and finding the properties of things as well (Gazi, 1989). Because there are being attended specific games in any time horizon and upon the conditions of that era and other possibilities and conditions of the community, now according to the development of science and technology, PC games are more attracting the kids, adolescents, young people and even adults. Like any other technology, these games come with advantages and disadvantages and benefiting from the advantages and preventing its disadvantages depends on how someone uses it (same reference).

PC games comprise one of the hobbies of children, adolescents, young people and even adults in new era. These exciting and attracting games rivet kids and adolescents for hours before the display and take him from reality world to the fantasy one; at the same time, it teaches either him a thing or takes a thing and or leaves him in his endless fantasies. Besides their advantages, these games left occasionally mental and physical destructive effects on children and adolescents that might be impossible to rectify them based on their subtle minds (Gatrigi, 2005).

Today, using PC games is for accessing to different educational objectives. Game may promote the motivation of children and adolescents and it is recommended for complicated and long-term learning (Maleki, 2006).

The best result is provided by games when they have a clear objective as well as determining the uncertainty of outcomes of different games for making actual challenges (Manteghi, 2007).

PC games have been classified by different specialists. Newman for example, quoted by Mantegi (2007) provided following classification for PC games: Action and Adventures, Driving and Racing, Firing and Shooting, Enigmatic and basic, having a transient role, approach and simulated, sports and competitive. This study investigates 4 types of games mostly played by students including: (1) training, (2) sports, (3) warship, and (4) strategic (management)- self-regulated learning. And here we mean of PC games as type four.

In psychology and educational science, when scientist considers the learning, he will see when learning could be attained to its optimal limit and learners could update their knowledge fast and by increasingly progress- the issue attended more by training dimension. Besides training issues, the educational issues of learners are also being considered and if this is applied in learning, the learning will have more stability. In the Social Cognitive Theory, a kind of learning called Self-Regulated Learning, has considered the learning both of training and educational dimensions; and in this method, learners will have personal control on the training; therefore, it will leave learners with speed and high accuracy in learning, training

issues such as higher self-reliance, higher self-efficiency and responsibility (Zimmerman, 1990).

The main framework of self-regulated learning theory is based on this principle how an individual can organize his learning based on metacognitive, motivational and behavioral aspects. For this reason, new approaches are trying to determine how learners can organize their learning meta-cognitively, motivationally and behaviorally (Zimmerman & Martinez- Pons, 1990).

According to theoretical model of Pintrich & De-Groot (1990), other factors influencing on learning include motivational strategies summarized into two parts, motivational beliefs and self-regulated learning strategies. And motivational beliefs itself include three scales, intrinsic value, self-efficacy and test anxiety. Self-regulation includes meta-cognitive, cognitive and resource management approaches (Pintrich & Schunk, 1996).

According to this model, self-efficacy means a set of beliefs of students about their capabilities in doing their jobs, intrinsic value means the importance of a specific lesson given by student and test anxiety means a specific emotional state student experiences by evaluation situation in his official tests (Kajbaf, Molavi and Shirazi, 2003). Meta-cognitive means attaining to knowledge and cognition from the weaknesses and strengths of its cognitive activity directing him during cognitive activities (Wang, 1999, quoted by Montague, 2008). Cognitive approaches mention different learning methods used by learner to remember and understanding its content. Resource management indicates this subject that learner uses the time optimally spent to study. By time management, learner can indeed control its life. Self-regulating individuals are familiar with influence of environmental factors on their attention during study and are able to modify and change it (Pintrich & De-Groot, 1990).

By making the schools intelligent and technology development in the field of computer games, such games can be considered as a source of rich learning in the field of cognitive and meta-cognitive approaches, because games provide necessary motivations for involving in different situation of individuals. According to the weakness of traditional training system for meeting the needs of today's world, we require promoting and modifying this system and this is possible by the help of new technologies and PC games and particularly PC training games are accounted as the most important tools that despite their attractiveness and popularity, they can meet our goals in order to make cognitive and meta-cognitive approaches and making motivation, self-efficacy and reduced anxiety. PC training games put the user in a situation almost according to actual living conditions who test their practical potency and intelligent and deal with strengthening them and social games also perform in other way (Ansari, 2011).

In this case, there is no study directly investigated the relation between PC games with self-regulated learning approaches and motivational beliefs whether nationally or internationally; therefore there were used of studies in parallel and related to our study.

In a study called "Experience of Video- PC Action Games on performance of Task Change", Green, Sugarman, Medford and Klobusicky (2012) concluded that users who played Action Video Games are able to change their duty fast and give up from a duty and deal with another duty; on the other hand, they are able to change their duty fast. In another study called "Problem Solving and Cooperation for Using Training Games by Mobile Phone", Sanchez & Olivares (2011) concluded that the cooperation and problem solving capability of individuals after

implementing the project (playing PC games) were increased in test group, indicating that one can benefit from games for improving the communicational skills. In another study conducted by Dondlinger (2008) called "Designing the PC Games and Training", they found that it is generally accepted that games will motivate users spending times to dominate on games and benefit from games; however by considering more elements in designing the games such as rules, narration, content, goals, rewards and multi-sensitive signs, users in different ages can easily and fast learn the things. In a study, Salen & Squire (2008) found that PC games could help children affected by attention problems and self-esteem. PC games for example can provide a desirable social situation for a child who driven from the society (quoted by Roshanian, 2012). In a study, Squire (2006) states that using PC games may increase the Eye and Hand Coordination. McAlister, Ravenscroft and Scanlon (2004) also reported that during PC games they provided for game players, they forced to exchange ideas together. Next studies indicated that discussions among users add their critical thought and providing their arguments.

Roshanian (2012) conducted a study called "Relation between Usage of PC Games and View to Problem Solving Capabilities among Male Pre-School Students", and concluded that there is significant relation between PC Game playing and trust to problem solving; but no significant relation between usage of PC games and Tendency- Avoidance Style to problem solving and personal control on problem solving.

In a study called "Reviewing the influence of PC Games on academic performance of students of 2nd and 3rd grade of guidance school", they concluded that there is no significant relation between using PC games and academic failure and fantasy; but there is a significant relation between PC games and creativity and academic performance. In another study called "Influence of training PC games on performance of visual memory of students affected by learning disorder dyslexia", Pakatchi (2011) found that selected PC games have positively significant association on visual memory of students affected by dyslexia. Rostami, avadipour, Ganbari, Mandani, Batool and Azizi MalAmiri (2011) conducted a study called "Influence of Sensomotor Games in virtual medium on eye and hand coordination of children affected by hemiplegia" and found that conducting such games in virtual media is because the medium is interactive and motivational and frequent exercise and its abundant feedbacks may improve eye and hand coordination of children affected by hemiplegia.

In a study by Kothari and Shagasemi (2009) called "Interactive PC games and Service Recalling", found that one of the main factors in the success of such games is involving the user and being interactive. In their study, these researchers mentioned that PC games in communication world are among strong interactive media.

Maleki (2008) conducted a study called "Studying the Relation between Playing PC games and Critical Thinking among male pre-university students of Kermanshah", and concluded that PC games have positive effect on some sub-branches of critical thinking and there is a significant relation between playing PC games and some sub-branches of critical thinking.

A meta-analysis of studies conducted indicates that by various reasons such as involving different senses during the game playing, enjoying from considerable graphic, special effects of different levels, simple to complicated in the game, providing the user with necessary feedbacks in some games and similar, PC games comparing to traditional education and

training come with higher efficiency (Manteghi, 2007). As mentioned above and properties of PC games, this study aims to investigate the relation between the rate of playing types of PC games- sports, warship, training and strategic, with self-regulated strategies and motivational beliefs in the male students of 3rd grade in high school. For this reason, the main hypothesis of this study includes:

There is a relation between rate of playing types of PC games- training, sports, warship and strategic, in general and separately with self-regulated learning strategies and motivational beliefs in male students of 3rd grade in high school.

Methodology

Population of this study includes all male students of 3rd grade in high schools of Sabzevar with the size of 800 in three fields of study, basic science, mathematics and liberal arts in academic year of 2012- 2013. The sample includes 260 male students of 3rd grade in high school including 12 classes taken randomly from high schools of three regions, benefited, semi-benefited and deprived in Sabzevar.

Measuring tools and data collection

Motivated Strategies for Learning Questionnaire: in this study, to evaluate the self-regulated learning strategies and motivational beliefs, there was used of questionnaire of motivational strategies for learning developed by Pintrich and De-Groot (1990). This questionnaire has been developed by Pintrich and De-Grot (1990) for evaluating the self-regulating approaches and motivational beliefs and called Motivated Strategies for Learning Questionnaire (MSLQ). This questionnaire has two scales, motivational beliefs with 25 items and self-regulated learning strategies with 22 items and total items of this scale is 47 and responses are according to 5-point Likert Scale with 5 points from "Highly Agreed" (5) to "Highly Disagreed" (1). According to results of factor analysis, the dimension of motivational beliefs of this questionnaire include three components, self-efficacy, intrinsic value and test anxiety and dimension of self-regulated learning strategies comprised from two components, cognitive approaches and self-regulation. Alborzi and Seif (2002) completed and normalized this scale in Iran. Studies conducted by Pintrich & De-Groot (1990) for determining the reliability and validity of Motivated Strategies for Learning Questionnaire indicated that reliability for three factors of motivational beliefs, i.e. self-efficacy, intrinsic value and test anxiety was obtained about 89%, 87% and 75% respectively and for two scales of self-regulation strategies, i.e. cognitive an self-regulation approaches was 83% and 74% respectively.

Hosseini Nasab (2000) examined the validity of this test using Factor Analysis method and results obtained by Cronbach Alpha for self-efficacy, intrinsic value, test anxiety and cognitive and meta-cognitive approaches were 68%, 41%, 77%, 64% and 68% respectively. To obtain the validity of Motivated Strategies for Learning Questionnaire, Alborzi and Samani (1999) also used retesting method with validity coefficient of 76%.

Evaluating PC Games: In order for evaluating the PC games, there were designed two questions in the questionnaire related to the time spent (based on hours) for playing PC games during a week and type of games.

Study design and data analysis method

This study designed descriptive of correlation type, because researcher tried to investigate the relation between variables such as playing types of PC games with self-regulation approaches and motivational beliefs. Descriptive statistics and

inferential statistics including Pearson Correlation Coefficient and Multi-Variant Regression were used for data analysis.

Results

Participants included 260 students taken from 5 high school through Sabzevar, in different fields of study including 110 in mathematics (42.3%), 110 in basic science (42.3%) and 40 in liberal arts (15.4%).

To study the relation of each variable for playing types of PC games with motivational beliefs and self-regulation approaches, there was used of SPSS software, such that initially the correlation coefficient between variables of study were calculated and its results indicated in table (1).

Discussion & conclusion

This study conducted among students of 3rd grade in high schools of Sabzevar aiming to investigate the relation between playing types of PC games with self-regulation learning strategies and motivational beliefs. Results indicated that there is no significant relation in general between playing types of PC games- training, sports, warship and strategic- with self-regulation learning strategies and motivational beliefs; but when games are being investigated separately, there is significant relation between rate of playing types of PC games with self-regulation learning approaches and motivational beliefs; while there is no significant relation between rate of playing sports, warship and strategic games by self-regulation learning approaches and motivational beliefs. And in the predicted model, it was determined that the best predictor for self-regulation learning approaches and motivational beliefs is training games.

In this case, there was no study found by author directly investigated the relation between PC games with self-regulated learning approaches and motivational beliefs whether nationally or internationally; therefore there were used of studies in parallel and related to our study.

According to results obtained between rate of playing types of PC games- training, sports, warship and strategic, there is no significant relation between game playing in general and self-regulation learning approaches and motivational beliefs.

Results of this study is conformed with results of Roshanian (2012) who concluded that there is no significant relation between rate of playing PC games and tendency- avoidance style to problem solving and personal control in problem solving as well as with studies of Gorbani (2007) who indicated that PC games have no significant relation on body temperature, while non-violent PC games have no significant relation with each motivational variable and not increase the physiological motivation and also this study is in contrary with results of Green et al (2012) and Sanchez and Olivares (2011). The reason of such significance level might be due to type of games played by students. Because some Commercial Companies producing such games only think to their profits, so they usually design funny games; while a good PC game must involve individuals by their identity. This is the identity provided to player by game and or it is an identity that player makes in the game. Another factor is the intractability of the games. In the game world there happens nothing, unless when player makes decision and do a job. In a good game, discourse and act embedded in a background of interaction between game player and the world. In good PC games, game players are producer and not only consumer; they are not only reader but also writer. Even in lower levels of play, game players deal with common game design by their action and decision.

Table 1. Results of Pearson Correlation Test between rate of playing types of PC games with self-regulation approaches and motivational beliefs

		Types of PC Games				
		Sports	Warship	Training	Strategic	Total hours spent
Motivational beliefs	<i>Correlation score</i>	-0.062	0.017	123 (**)	-0.03	-0.007
	<i>Significant level</i>	0.32	0.78	0.03	0.54	0.91
Self-regulation	<i>Correlation score</i>	0.096	0.046	122 (**)	-0.06	0.08
	<i>Significant level</i>	0.12	0.046	0.04	0.28	0.19

** it is significant in level 0.05.

Table 2 indicates that using predictor variable (total hours spent) one can predict 0.11 of self-regulation learning approaches and 0.08 of motivational beliefs.

Table 2. Summary of Multi-Variant Regression Model by Inter Method

Model	R	R Square	Adjusted R Square	Estimated Standard Error
Self-regulation	0.173	0.30	0.11	6/11099
Motivational beliefs	0.166	0.28	0.08	7/62627

Predictor variable: total hours spent for playing types of PC games.

Criterion variable: self-regulation approaches and motivational beliefs

Table 3. Simultaneous Regression for predicting self-regulation learning strategies based on rate of playing types of PC games

<i>Model</i>	<i>B</i>	β	<i>T</i>	<i>Significance Level</i>
Sports	0.030	0.019	0.080	0.936
Warship	-0.028	-0.014	-0.067	0.946
Training	0.793	0.111	0.581	0.04
Strategic	-0.269	-0.108	-0.640	0.523
Total hours spent per week	0.131	0.107	0.380	0.735

Table 4. Simultaneous Regression for predicting the motivational beliefs based on rate of playing types of PC games

<i>Model</i>	<i>B</i>	β	<i>T</i>	<i>Significance Level</i>
Sports	-0.849	-0.434	-1.86	0.063
Warship	-0.772	-0.315	-1.54	0.123
Training	0.902	0.515	1.97	0.04
Strategic	-0.917	-0.305	-1.79	0.073
Total hours spent per week	0.834	0.472	1.87	0.076

Even in lower levels of the game, by their act and decision, game players design the game commonly, while a good game player let him to resolve an issue or complication by different methods and by its style. In the game, therefore, game players feel skill and control and have a real feeling of ownership to what they have conducted.

But when such games are being investigated separately, it is determined that there is a significant relation between rate of playing PC games with self-regulation learning approaches and motivational beliefs; while there was no significant relation between sports, warship and strategic games with self-regulation learning approaches and motivational beliefs. So it can be concluded that by increased rate of training games, self-regulation learning approaches and motivational beliefs will be increased. This result is conformed to the results of Pakatchi (2011), Ansari (2011), Sanchez and Olivares (2011).

It seems that the reason for such positive significance relation between rate of playing PC games with self-regulation learning approaches and motivational beliefs of students is that training games provide effective training environments and also provide students with training. They play very important role in motivating the learners. In training games, students develop their capabilities and cognitive merits and obtain the knowledge and skills for problem solving that are necessary for efficient cooperation in a greater community. While obtaining cognitive skills, students achieve increased sense of their mental efficacy and because training games are being made with the training-

entertainment objective, and such games are made based on training goals for special levels, it can be concluded that such games have been such designed that are conformed to age and capabilities of individuals. When a training game is conformed to age and capability of students, such games can be played based on their capabilities and this may provide the students with enough motivation for playing game. Some properties of training games include: Lower intrinsic motivation, non-integrated learning experience, simple game play and absence of teacher.

For other games however, i.e. sports, warship and strategic games, the reason as mentioned above for not being in significance level can be justified.

Now, according to results of this study, it is recommended to the authorities of education and training to provide students with training games for some of lessons by which students can encounter with issues to achieve necessary skills for their future.

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