Comparing the Functions of Observational Learning in Female Basketball Players of Tehran First Division Clubs with Different Levels of Self-Efficacy

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Abstract

The purpose of the present study was to compare the functions of observational learning among female basketball players in with different levels of self-efficacy in the first division clubs of Tehran. Therefore, 63 players voluntarily filled out the functions of observational learning (Cumming et al., 2005) and physical self-efficacy questionnaires (Ryckman et al., 1982). The players were assigned to upper and lower self-efficacy groups based on median. The data analyzed by MANOVA to compare the functions of observational learning in different levels of self-efficacy. According to the results, there were no differences between skill and performance functions in upper and lower self-efficacy groups, but there was significant difference between strategy function of 2 groups ($p<0.017$). Thus, it seems that skilled basketball players with upper self-efficacy use more observational-learning function. Research findings suggest that athletic trainers, sport psychologists and athletes at all levels and functions of observational learning can benefit as a powerful tool for the acquisition of motor skills and mental preparation of the athletes.

Key words: Basketball, Observational learning, Physical self-efficacy

Introduction

Teaching motional skills to athletes has always been a principal job for coaches and physical trainers and many researches in the field of motional learning have been carried out so as to find more efficient approaches to enhance learning skills. One of the fundamental factors of teaching motional skills, recognized by many theorists, is the use of observational learning [1]. Observational learning or the process of learning through observing performance of relevant behaviors is one of the most powerful means of transforming information regarding the quality of performing a skill [2].These are considered by coaches and athletes as a referential tool in teaching and acquiring new skills [3],[4].Showing a motion leads to progress in cognitive or perceptive recognition in an observer. Such recognition later would be used as a reference to assist the observer in performing a skill [2].In the sports psychology realm, researchers have proven the useful psychological impacts of observational learning, as well [5]. From a theoretical perspective, Bandura's studies [2]. in both Social Cognitive Theory and Self-Efficacy have shown that observational learning results in self-satisfaction [6] and improvement of performing athletic skills and stress reduction [7],[8].through affecting learner's self-efficacy. Bandura maintains that in a situation when required skills and suitable stimuli are present, self-efficacy is the first determinant in choosing an activity, level of effort and stamina [9]. Self-efficacy is defined as an individual's belief in the ability of fulfilling a certain task or achieving a certain goal successfully. From a psychological point of view, individuals with high self- efficacy tend to persevere more in tasks and are usually more efficient. Such individuals, comparing to those with lower self-efficacy, are more self-confident and doubt about their abilities far less. They think of obstacles as challenges rather than threats and actively seek new opportunities. Higher self-efficacy decreases the fear of failure and enhances problem-solving abilities and analytical thinking [10].Bandura holds that observational learning is a main source to increase self-efficacy through either skilled experiences (observing athlete's recorded performance by himself) or substitution experiences (observing live or recorded performance of others) [11].In spite of the fact that athletic skill learners benefit from observational learning as an approach in acquiring such skills [4], and coaches' claim regarding their use of modeling in augmenting self-efficacy [3], scant records are at hand about using observational learning in sport fields. Moreover, despite the broad researches carried out over observational learning, our knowledge about the fact that why athletes use this method as a technique of changing behavior is limited. In addition, in most of the researches just one single model exists and the condition in which a learner uses the observational learning in a real situation is not taken into account [11]. To deliberate this problem, Cumming and colleagues (2005) [12] used observational learning questionnaires by the help of which they could measure athletes' use of observational learning for various motivations and functions in both real and laboratory environment. Cumming and colleagues (2005) [12], Hall and colleagues (2009) [13], and Wesch and colleagues (2007) [14] made use of these questionnaires to analyze athletes' use of observational learning according to their age, their field and level of competition. The range of participants in all these researches was comprised of student athletes from a vast gamut of sport fields and competition levels. The result of the researches revealed that athletes employed a medium level of observational learning; they benefited from skill's function, approach's function, and finally the function of performance. They also said that they used these three functions more during practice rather than times of contest [14]. Although Wesch and colleagues (2007) [14] found that men use the performance function far more than their female counterparts, Cumming and colleagues (2005) [12] and Hall and colleagues (2009) [13] did not notice any meaningful difference between men and women in terms of functions of observational learning. Comparing team sports and individual sports, Wesch and colleagues (2007) [14] and Hall and colleagues (2009) [13] concluded that skill functions are more utilized in individual fields, while approach functions are more practiced among athletes in team sports. Cumming and colleagues (2005) [12] and Hall and colleagues (2009) [13] studied the functions of observational learning in respect to competition level and did not recognize any variation among athletes from different levels. Nevertheless, Wesch and colleagues (2007) [14] pointed out a higher rate of the three functions among university team athletes than athletes who did sports as a hobby. Classifying athletes according to their level of skillfulness is of high importance since individuals' dexterity is one of the affecting factors in using the functions of observational learning [2], [5],[14].Observational learning among the novice[3],[8],[15] and those with higher level of skill and yet not professional [16],[17] is taken into practice to increase the acquisition and to improve the performance of motional skills. The data attained from many researchers suggest that having information about performance and structure of a movement for amateurs would be very useful, as the effect of such intermediaries in the beginning of learning a skill is more apparent [2], [18].Many studies show although professional athletes do not benefit from the skill function of observational learning, the approach and performance functions are quite constructive to them. Researches done in sports prove that professional athletes tend to adopt more sophisticated learning approaches, comparing to less experienced individuals [19], [20]. Observations are more constructive to the professional than amateurs [21], [22]. The superior ability of experienced individuals in handling the prepared information helps these athletes to identify the relevant aspects of performing movements more effectively [23], [24]. Little information, however, are available about the correlation between the level of skillfulness and using observational learning. In a study carried out by Law & Hall (2009) [25], the influence of dexterity level and age over functions of observational learning in golf players was analyzed. The results revealed that more skilled players adopted all of the three functions of observational learning more than players with lower levels of skillfulness. Many other surveys delved into the relation between functions of observational learning and self-efficacy, among which some of them are mentioned here as examples; namely, Legrain and Colleagues Research (2003) [26], which studied French boxing and testified that observational learning leads to improvement of performing skills and increase of self-efficacy in athletic environments. Boyce & Bingham (1997)[27] analyzed the influence of three levels of self-efficacy (low, medium, and high) upon the function in bowling game and concluded that individuals with high and medium self-efficacy had much better performances than those with lower levels of self-efficacy. As a result, it seems that not only do the more professional athletes use the functions of observational learning more, but they also use these functions in relation to self-efficacy in a different manner. Maybe due to their mastery in skills, athletes are inclined to adopt functions of approach and performance more than function of skill in order to increase the belief in self-efficacy. Nonetheless, this claim is remained unknown among higher levels of sports; moreover, since required athletic skills need both acquisition of certain skills and mastery in them, the mere achievement of self-efficacy does not sound satisfactory and the effect of such self-efficacy on the usage of learning functions and other athletic attitudes must be studied as well.

Methodology of the Research

Considering the nature of the subject and goals, the method of the present research is semi-experimental and is done in light of a causal-comparative research plan. The functions of observational learning in this research are considered as dependent variables and self-efficacy is mentioned as the classified or balancing variable. The statistical population of the present study consists of female basketball players of Tehran first division clubs in 2012 competitions. 63 players were chosen accidentally among the statistical populations as samples.

Measuring Tools

In this study the functions of observational learning questionnaire (FOLQ) (Cumming & colleagues, 2005) [12] is used to evaluate three functions of observational learning. 1- Learning and performing a skill (function of skill): which contains six questions (ex: I use observational learning in a performance or change of skill). 2-Learning and performance of an approach (function of approach): involving 5 questions (ex; I use observational learning to determine a required approach in a play). 3-reaching to efficiency in motivation and mental states (function of performance): consisting of 6 questions (ex: I use observational learning to figure out how to respond to competition's excitement). This questionnaire comprise of 17 questions in a seven-score Likert scale. Number 1 is mentioned for every statement within which observational learning is never used and number 7 applies for the cases within which observational learning is dominant; and the middle of the spectrum is represented in numbers 2 to 6. Records of higher numbers show higher rates of observational learning usage in individuals. Cumming and colleagues (2005) measured the credit and stability of this questionnaire via Cronbach's alpha in level of 0/7. All of the scales possess acceptable internal credit as they equals 0/9 in performance, 0/89 in skill, and 0/84 in strategy [10].The physical self-efficacy questionnaire (PSE) is used in collecting information about self-efficacy. This questionnaire covers 22 sentences that participants must mark in a six-score Likert scale, ranging from totally disagree to totally agree. This questionnaire comprises of a ten-sentence micro scale of "perceived physical ability" and a twelve-sentence micro scale of "confidence in physical self-presenting". Perceived physical ability refers to the perceived confidence of individual in performing physical skills and its score range is from 10 to 60. The micro scale of confidence in physical self-presenting is defined as individual's confidence in displaying physical skills and being evaluated by others in a score range of 12 to 72. Higher scores in the first micro scale represent more perceived physical ability and higher scores in the second micro scale describe more confidence in performing physical skills. Questions 1, 2, 4, 6, 8, 12, 13, 19, 21, 22 and questions 3, 5, 7, 9, 10, 11, 14, 15, 16, 17, 18, 20 are used for measuring perceived physical ability and evaluating the confidence in physical self-presenting, respectively. Combining these two micro scales gives us a general score of physical efficacy in a scale of 22 to 132; generally, higher scores show higher physical self-efficacy [28]. The stability coefficient of this scale for the present research, estimated by Cronbach's alpha, is 0/75.

Applying Method

After collecting the questionnaires by researcher, the data were put in SPSS statistical software (19version) and players were divided into two groups of high and low self-efficacy. After extracting the information, descriptive statistics were used in classification and setting the data and determining measures of central tendency (average and medium) and indices of dispersion (standard deviation and variance). In each group Shapiro-Wilk prepared test of plausibility of variables' dispersion and Levin's test for homogeneity presupposition of variances were used. Multivariate analysis of variance (MANOVA) was used to compare the functions of observational learning in the two groups; and the P-value is considered p < 0/017.

Results

Table 1 shows descriptive statistics of observational learning functions among various groups of self-efficacy. As shown in the table, the average score of all of the observational learning functions in the groups with higher self-efficacy exceeds the score of groups with lower self-efficacy.

Table1- Descriptive statistics of dependant variables in various groups

Variable	Group	Number	Standard Deviation	Average
Skill	High self-efficacy	24	5/302	27/12
	Low self-efficacy	25	8/999	24/36
	Total sum	49	7/478	25/71
Approach	High self-efficacy	24	4/894	25/96
	Low self-efficacy	25	7/522	20/40
	Total sum	49	6/903	32/12
Performance	High self-efficacy	24	5/397	28/08
	Low self-efficacy	25	8/453	25/28
	Total sum	49	7/19	26/65

The results indicate that function of performance was more used among participants (M=26/65, SD=7/190) and following that the use of function of skill (M=25/71, SD=7/190) and function of approach (M=23/12, SD=6/903) were decreased, respectively. Results in multivariate analysis of variance (MANOVA) in comparing the functions of observational learning in different groups show a meaningful effect (Λ=0/822,F (3, 45) = 3/246, p=0/031, μ^2=0/178). One-way analysis of variance test showed a meaningful difference only between two groups' function of approach.

Table2- rate of using functions of observational learning among various levels of self-efficacy

Origin of Changes	Dependent Variable	SS	DF	MS	F	P	μ2
Group	Skill	93/615	1	93/615	1/633	0/199	0/035
	Approach	378/307	1	378/307	9/314	0/004	0/165
	Performance	96/229	1	96/229	1/896	0/175	0/039
Error	Skill	2590/358	47	55/115			
	Approach	1908/958	47	40/616			
	Performance	2384/873	47	50/742			

(p< 0/017)

Discussion and conclusion

Athlete are inclined to use mental skills (ex: observational learning, picturing, etc) more during competition than practicing [30], [31], [32]. Bandura (1986) states that most of the human's behaviors are acquired through observing models; hence, functions of skill and approach are more likely to be used in practice rather than competition. If observing athletes' functions of skill and performing approach during competition causes distraction, its utility might be subject question. Competition, on the other hand, is a good opportunity for athletes to observe the way others prepare mentally or how they stick to their decisions (stability, perseverance). Thus, function of performance is most probably used in competition. Supposing that competition is about efficient performance and practice about learning [13], the results attained from this research are not far from expectation. The results of this research revealed that the average score for function of performance in female basketball players was higher than of skill and approach functions. This condition might be due to analyzing the functions during the courses of athletic competitions. This might also stem from athletes' unawareness of the two other—skill and approach— functions; these findings are discrepant to those proposed by Hall and colleagues (2009) [13]. Such discrepancy might originate from the differences between the present research and Halls and colleagues' (2009) [13] research in terms of participants' gender, their skill level (recreational, competitive), and the kind of sport (volleyball, basketball, football, ice hockey, and rugby) they practiced. Moreover, these results are not in line with findings of Wesch and colleagues (2007) [14], Law & Hall (2009) [11] and Sotudeh and colleagues (2012) [32], either. Athletes in these three researches began with function of skill, continued with approach, and in the end got to function of performance. Observational learning includes two cognitive aspects—skill and approach— and a motivational aspect of performance [12]. Those athletes who were studied in these sport fields mostly focused on cognitive aspects of observational learning; in other words, they used observational learning to learn skills and approaches in games. In the present research, however, female basketball players concentrated more on the motivational aspects of observational learning. One of the possibilities is that participants in Sotudeh and colleagues' study (2012)[32], Wesch and colleagues (2007)[14], and Hall and colleagues (2009)[13] were of various levels (recreational, competitive, etc.), while in the present study, all the participant are female basketball players of Tehran first division clubs, which is to say, a more potential equal level of competition. As result, the motivational aspect of observational learning can be taken more into practice than the cognitive aspect. It is worth mentioning, of course, that in using these findings and generalizing them, caution must be taken, as the data are attained from a small sample case. From a theoretical point of view, both Bandura's Social Cognitive Theory and Self-efficacy Theory [2] claim that observational learning spawns improvement in performance and learning a skill through affecting learners' self-efficacy. Self-efficacy affects individuals' motional functions positively [33], [34],[35],[36],[37]. Findings of the present study on this subject show that the average score of all of the observational learning functions among groups with high self-efficacy exceeds those of the groups with lower self-efficacy. This result is in line with the concepts presented in Bandura's Social Cognitive and Self efficacy theories [2]. Other than these two theories, the correlation between observational learning and self-efficacy can be explained, based on other cognitive-social structures such as Zimmerman's self-regulated learning structure (1989)[38]. Self-regulated learning consists of thoughts, emotions, and self-constructed affairs that are designed orderly so as to affect individual's acquiring knowledge and skill [39]. One of the fundamental processes in creating and using such strategies—self-regulated learning— is perception of learners' efficacy. Observing patterns in learning skills not only augments self-efficacy, internal motivation, and self-regulation, but it also causes individuals to look for challenging situations and to seek new opportunities. Thus, individuals with higher-self efficacy are likely to use these approaches more effectively and get higher scores in the functions of observational learning. Although the effectiveness of self-efficacy in observational learning was acknowledged in the aforementioned explanations and it was stated that individuals with higher self-efficacy achieve higher scores in different functions of observational learning, other findings of this research revealed that differences among groups in terms of functions were limited to approach function and no difference was observed in the two skill and performance functions. The presence of meaningful difference in the function of approach among two groups might be considered attuned to Wesch and colleagues' (2007) [14] explanations. Wesch and colleagues maintained that athletes in individual sports are more inclined to show distinction and utilizing the function of skill; while, athletes in team sports, comparing to individual athletes, tend to show distinction and using function of approach. Since the studied field in this research—basketball—is a team sport, the nature of this game might have brought about differences between the two groups. Results of Law and Hall's study (2009) [11] contradict the findings of the present research. They analyzed the correlation between functions of observational learning and functions of self-efficacy. Their results pointed out a meaningful connection between the two functions of skill and performance and the functions of self-efficacy; and yet, denied any connection between the approach function of observational learning and any of self-efficacy's functions. The present research, however, showed that individuals with higher self-efficacy are better in handling function of approach and using it. Proof to this finding can be the fact that participants in Hall & Law's (2009)[11] study were amateur; because as long as individuals are not proficient in basic skills, their attention would not be drawn from performing skills to performing approaches and furthering tactics (for games' key situations). Moreover, as approach is one of the basic features of team sports, participants must reach to a certain experience level to be able to interpret the function of approach with respect to their belief of self-efficacy. Hence, the role of training among coaches, sport psychologists, and athletes in different functions of observational learning would be of crucial importance. Athletes must be encouraged to benefit from functions of observational learning in all levels to have efficient performance.

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