

COMPARISON OF REINVESTMENT AND DECISION MAKING OF SKILLED AND SEMI-SKILLED PLAYERS IN TEAM AND INDIVIDUAL ATHLETICS UNDER STRESSED CONDITIONS

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Abstract

The purpose of the present study was to compare the investment and the decision making of skilled and semi-skilled players in team and individual athletics under stressed conditions. A sample of 60 females from Sanandaj Municipal Basketball and Badminton Clubs consisted of four groups, each with 15 subjects (semi-skilled). To measure decision making, the software was designed to test the speed and accuracy of decision making as a paired decision (2010). To assess "reinvestment", the questionnaire of investment (1992), the review of Jackson and Ashford (2010) and for the success of pressure manipulation under stressed conditions the Cox competitive anxiety state Questionnaire were used (2003). Players responded to game conditions under two situations of high pressure (complex task) and low pressure (simple task). Multivariate analysis of variance was used to compare the groups. The results showed that the level of investment of skilled players was lower than that of semi-skilled players and investment of individual athletes were higher than team ones. Semi-skilled players in individual athletics scored more points in all vigilant scales except in the cognitive deflection variable. In general, investment, skill level and discipline (team-individual) are the most important factors influencing decision-making under pressure.

Keywords: *investment, decision-making, semi- skilled, skilled, under stress conditions.*

Introduction

Competition over mental management of athletes has outpaced efforts to improve their physical condition. The goal of the researchers is to help the learner to execute correctly the skill in the competition and improve performance under pressure. One of the key factors for success in sports is decision making. Decision making is a critical part of sport performance, and full understanding of the decision process and the factors affecting of it is of great importance (Teri & Hepler, 2015). What today athletes need at different levels of skill requires decision-making with speed and accuracy. Ericsson & Cheas (1982) argued that training and practice lead to a stronger relationship between structure, encryption, retrieval structure, retrieval of related symptoms, and consequent quicker and more precise decision making by athletes. Another key factor distinguishing performers is decision-making skills in stressed situations (Kinda, 2011). Despite the experience and training of the individual for quick and correct decisions in practice is decision making in stressful situations due to the importance of competition or the time constraints of the competition completely changes the situation. From a theoretical point of view, the special ability to encrypt and retrieve information accurately is of great value in decision making. Previous research has identified factors influencing decision making, such as stress and anxiety, poor communication between players and coaches, crowding, pain and injury, performance errors, criticism of the coach, the weather, or playing in bad situations (Otunn 2009). Recent research has described the complexity of the task as an effective moderator of

the speed of decision-making on performance under pressure (Nevel et al., 2015). Some researchers have involved other factors in decision making, according to Paget (2015), the distance traveled by referees in Netball is lower in the fourth set than in the first set due to physical refraction of the referee. Hill and colleagues (2016) also rated the importance of the game as one of the factors influencing the performance of rugby players. Harald's comprehensive study and colleagues (2017) examined the decision-making approach of players and some referees of the Super League of Netball and the impact of environmental and environmental factors affecting their decision. The results showed that all the environmental and environmental factors could affect the players' decisions, and the referees tended to rumble more about decisions regarding the host team. Another important factor that has recently been addressed by some researchers is the "Reinvestment." This concept states that some athletes consciously attempt to move in a step-by-step model using explicit motion-related knowledge, and in fact, the motion is subject to Paralysis caused by analysis (Bilok & Kare, 2001). Another definition of vigilant revision was introduced by Masters and colleagues (2004). A reinvestment is the tendency to deliberately and clearly manipulate knowledge based on working memory to control the mechanisms of part of the movements during motion execution. One of the reasons for the pressure drop is that the apparent motion-related knowledge is restrained vigorously, which impairs the auto-control of the movement, Masters said the concept of reinvestment has gained significant

support from the study of various types of motor homework such as golf blows (Hardy 1996), test of high ball Chill's football head (2003), field hockey dribbling (Jackson 2006) (Williams 2000). In the forthcoming research, Kindera and Jackson (2010) developed a reinvestment scale and concluded that individuals with higher reinvestment levels would experience more performance loss. In this regard, Malhotra et al. (2012) achieved similar results. Surgeons, with a lower alertness, were faster and better performance, more responsive than their peer-reviewed counterparts in laparoscopy. Various theories have been presented in terms of implementation errors or failures due to pressure conditions. The researchers have tried to raise the causal links between stress, anxiety and performance in their theories, but few attempts have been made to compare these theories with respect to special motion control mechanisms which results in the degradation of performance under stressed conditions (Billock and Gray 2007). For example, Baumyster's (1999) and reinvestment theory (1929) argued that skilled performer performance is under pressure because its performance improves as a beginner performs.

In confirmation of this theory, Gary and Williams (2011) found that skilled golfers, under pressure conditions, are willing to return to the control strategies of beginners and are trying to set off blows at different intervals. Gray (2004) also reported that pressure can only increase the variability in the timing of the various stages of kicking a baseball bat. Contrary to the theory of Ironic process (Wenger et al., 1993), the pressure makes the skilled executor to maintain the typical characteristics of a professional performance, but acts as a different goal. For example, the golfer tries to avoid kicking the base and directly strikes the ball. Damman et al. (2015) recently presented evidence of low performance under pressure conditions that is consistent with the avoidance assumption. In the field of hockey, shooting, darts' homework, blows in the marginal areas are more likely to hit. Bard & Fleury (1976) presented their first attempts to measure decisions by slide of positions in basketball attack. Initial research has compared the power of decision-making of skilled and semi-skilled athletes from a number of aspects, such as sensory and information processing, reaction time, sharpening, perception of depth, vision, and peripheral vision (Williams, 2000). Despite the importance of understanding the decision-making process in sports, there are few empirical studies that examined the increased ability of decision making of skilled people. In the team sports, basketball requires high-neuromuscular coordination and rapid and accurate decisions due to the complexity and speed of it. Team players are more exposed to psychological pressures than individual disciplines, and these factors are driven by commands and, consequently, their decisions have a negative impact (Klarly, 2001). Researchers believe that under stressed conditions, individual players played a better role than team players their argument was to have a

competitive spirit over individual players (Sowaen & Jonze, 2014). Further studies showed that the increase in basketball knowledge was a strong predictor of players' decision-making ability. Findings of Williams (2005) also proved the development of special knowledge in decision making. The relationship between the reinvestment, the knowledge related to task and the processing of motor in decision processes and its impact on the speed and accuracy of players under stressed conditions is not yet fully apparent, but attempts to clarify the relationship between these factors in execution, the optimal performance continues, and hopefully young researchers will achieve it. In this research, we examined and compared the factors affecting decision making such as the level of vigilance review and underlying factors such as skill level (skilled - semi-skilled), the nature of skill (team-solitary). By manipulating the pressure conditions and designing the software, the speed and precision of the decision making effect of these factors and their interaction were measured.

Materials and methods

The present study was semi-experimental and field-based. A plan containing four groups with post-test was used. In this study, the decision skills and the willingness to have a investment of skilled and semi-skilled players of basketball and badminton were compared under pressure conditions. A sample of 60 girls (age 20.5 ± 3), including 30 basketball players and 30 badminton players in Sanandaj Club clubs, were selected purposefully. Subjects in each discipline were divided into two groups: skilled and semi-skilled and placed in four groups. The skillful term refers to players with at least four years of experience in super league and semi-skilled players with at least two years of experience in Super League teams.

Research tools

The tools were used in this research

-The Reinvestment Scale (1992): It has 20 items, 12 of which have been adapted from the Fenigstein consciousness scale (1957) which is intended to predict people's willingness to be vigilantly monitored and to deliberate processes in stressful situations. The items themselves are divided into two sub-groups: Self-consciousness private (attention to inner thoughts and emotions) and Self-Consciousness public (self-awareness as a social individual). Also, 7 of these items refer to rehearsal or mental practice (a person's mental inclination to rumination about exercises or emotional events). The final item is adapted from Bradbent's Cognitive failures (1982) which measure the "tendency to be part of the components of action."

-Jackson's (2010) decision-Specific Reinvestment Scale review questionnaire: This scale consists of 13 items and two factors. The first factor of the deliberate review of decision includes (6 items for assessing the informed monitoring of the processes involved in making a decision).

The second factor of that decision rumination included (7 items of assessment of the tendency to focus on false decisions in the past). In order to measure the person's investment factor, the criterion was his score obtained from the questionnaires. First, we obtained the score of the subscales from the sum of the points of its items, then the total score of the subscales was summed up to calculate the vigilant scorecard, and, finally, the score of each player's investment was obtained. Master (1982) reported internal validity (Cronbach's alpha = 0.86) and a test-retest in a four-month period (r = 0.74). In the present study, for testing the reliability factor, the test-retest method was performed on 120 players and alpha for both factors was calculated to be 0.76 and 0.83, respectively.

-The speed and precision decision making software for the WebMinington basketball industry was developed using the software (paired 2010). The software consists of four sections, the first part of the definition of the groups, the second part of the definition of skills, the third part of the test and the fourth part of the observation of the results.

At first, the NBA and Asian Badminton Competitions were downloaded then the "Splash" software was used to make a video of the video in the intended positions.

-Thirty slides of basketball and thirty slides of badminton, which have the best position to decide, were selected, loaded and correctly answered. In the definition of skills, for the dribbling key (z), pass (x) and shot (c) are defined on the keyboard. In the test section, first, the personal information of

the subjects was recorded, the test started with the start of the start of the start of the rising test time), the subjects should see, as soon as possible, the key related to the responses (shots, passes, etc.) after seeing the slides. ..) were pressed. After answering, the number of correct answers, the number of false answers and overall time were displayed in the results section. The overall time of the score was "decision speed," the number of correct responses indicating "decision accuracy."

Protocol

The subjects were sitting comfortably in a roomy chair and the 17-inch portable computer was placed in front of them, the subjects were given the opportunity to take the easiest possible. How to fill out questionnaires and how to run a software test was described. Positions include: The time of the attack, the ball was at the striker's disposal, and the pass, dribble or shot conditions were selected.

Slides were previously screened by academic instructors to determine the most appropriate response in each situation. Players responded quickly and accurately under two high pressure conditions (task complexity) and low pressure (simple task).

Results

The descriptive findings of the research variables including the mean and standard deviations of the research variables obtained using descriptive statistics are presented in Table 1.

Table 1. Average and standard deviations of research variables.

Feild	Gropus		Team		Individual	
		N	M	SD	M	SD
self-awareness	Semi-skilled	15	4.13	35.2	53.14	04.3
	Skilled	15	93.7	96.2	07.10	41.2
public self-knowledge	Semi-skilled	15	2.11	45.2	00.11	85.2
	Skilled	15	8.7	31.2	73.7	71.2
rehearsal	Semi-skilled	15	07.12	34.2	53.14	17.4
	Skilled	15	53.8	99.1	33.8	39.3
cognitive fracture	Semi-skilled	15	8.2	21.1	27.2	28.1
	Skilled	15	.001	76.0	4.1	91.0
reinvestment	Semi-skilled	15	47.39	79.4	33.42	75.6
	Skilled	15	27.25	01.5	53.27	14.4
speed	Semi-skilled	15	29.4	58.0	13.4	58.0
	Skilled	15	79.3	56.0	63.3	73.0
precision	Semi-skilled	15	8.9	37.2	53.13	5.3
	Skilled	15	00.17	93.2	8.19	78.2

To investigate the normal distribution of data according to the number of samples (n = 60), the Shapiro Wilk test was used, the results are reported in Table 2.

Table 2. Testing the normal distribution of data.

Groups	df	Shapiro	Sig.
self-awareness	60	965.0	085.0
public self-knowledge	60	968.0	121.0
rehearsal	60	971.0	168.0
cognitive fracture	60	970.0	151.0
reinvestment	60	976.0	287.0
speed	60	973.0	209.0
precision	60	975.0	234.0

The results of Table (2) show that considering the larger significance of the obtained results from 0.05, in all variables, the assumption of normal distribution of data is confirmed ($p < 0.05$). Therefore, to test the research hypotheses,

parametric tests can be used. To analyze the research variables among the groups, the test of speed and decision accuracy between skilled and semi-skilled athletes, multivariate analysis of variance was used. Results are reported in Table 3.

Table 3. Analysis of variance analysis for comparing the speed and accuracy of decision making between athletes.

Variable	Effect	z	df		F	Sig.
Speed	Within group	112.4	3	371.1	592.3	019.0
	Inter group	364.21	56	382.0	-	-
Precision	Within group	4.843	3	133.281	899.32	001.0
	Inter group	533.478	56	545.8	-	-

The above table shows that the inter-group effect for both velocity variables and decision-making accuracy is significant ($P \leq 0.05$).

Therefore, to investigate the location of this difference between groups, Tukey's post hoc test was used in pairs (Table 4).

Table 4. Comparison of variable speed and decision accuracy.

Variables	Group	Group	Standard Error	SD	Sig.
speed	Team's semi-skilled	team's skilled	490.0	0/225	0/143
		individual's semi-skilled	153.0	0/225	0/905
		individual's skilled	659.0	0/225	0/025
	Team's skilled	individual's semi-skilled	338.-0	0/225	0/445
		individual's skilled	168.0	0/225	0/878
	Individual's semi-skilled	individual's skilled	506.0	0/225	0/124
Precision	Team's semi-skilled	team's skilled	2.-7	1/067	0/001
		individual's semi-skilled	73.-3	1/067	0/005
	Team's skilled	individual's skilled	00.-10	1/067	0/001
		individual's semi-skilled	47.3	1/067	0/01
	Individual's semi-skilled	individual's skilled	8.-2	1/067	0/053
	Team's semi-skilled	individual's skilled	27.-6	1/067	0/001

Comparison of the pair showed that there was a significant difference between the athletes and the individually skilled team in the decision rate velocity. There was a significant difference in the accuracy of decision making in all of the pair

comparisons except for the team skilled and individual team. In other words, the significant difference in decision accuracy is more than the speed of decision-making. Multivariate analysis of variance analysis was used to check the variables.

Table 5. The results of the test for the analysis of variance of reinvestment.

Variable	Effect	SS	df	MS	F	Sig.
self-awareness	Within group	413/783	3	137/928	18/784	0/001
	Inter group	411/2	56	7/343	-	-
public self-knowledge	Within group	167/00	3	55/667	8/297	0/001
	Inter group	375/733	56	6/71	-	-
rehearsal	Within group	401/2	3	133/733	13/927	0/001
	Inter group	537/733	56	9/602	-	-
cognitive fracture	Within group	30/00	3	10/00	8/898	0/001
	Inter group	62/933	56	1/124	-	-
reinvestment	Within group	3253/917	3	1084/639	39/194	0/001
	Inter group	1549/733	56	27/674	-	-

The results show that the intergroup effect is significant for vigilant scrutiny and all its scales ($P \leq 0.05$). To check the location of the difference, Tukey's post hoc test was used (Table 6).

self-awareness, self-awareness, and vigilant revision, except for the semi-individual team with individual and interpersonal skills.

Also, the results showed that there is a significant difference between the self-awareness, general

However, there was no significant difference in the cognitive deficits of the skilled and semi-skilled athletes (Fig 1).

Table 6. Comparison of Steady-State Revision Variable Pairs.

Variables	Group	Group	Standard Error	SD	Sig.
self-awareness	Team's semi-skilled	team's skilled	5/47	0/989	0/001
		individual's semi-skilled	-1/133	0/989	0/663
		individual's skilled	3/33	0/989	0/007
	Team's skilled	individual's semi-skilled	-6/6	0/989	0/001
		individual's skilled	-2/133	0/989	0/148
Individual's semi-skilled	individual's skilled	4/467	0/989	0/001	
public self-knowledge	Team's semi-skilled	team's skilled	3/4	0/946	0/004
		individual's semi-skilled	0/2	0/946	0/997
		individual's skilled	3/467	0/946	0/003
	Team's skilled	individual's semi-skilled	-3/2	0/946	0/007
		individual's skilled	0/067	0/946	1/00
Individual's semi-skilled	individual's skilled	-3/267	0/946	0/006	
Rehearsal	Team's semi-skilled	team's skilled	3/533	1/132	0/015
		individual's semi-skilled	-2/467	1/132	0/141
		individual's skilled	3/733	1/132	0/009
	Team's skilled	individual's semi-skilled	-6/00	1/132	0/001
		individual's skilled	0/2	1/132	0/998
Individual's semi-skilled	individual's skilled	6/2	1/132	0/001	
cognitive fracture	Team's semi-skilled	team's skilled	1/8	0/387	0/001
		individual's semi-skilled	0/533	0/387	0/518
	Team's skilled	individual's skilled	1/4	0/387	0/003
		individual's semi-skilled	-1/267	0/387	0/01
	Individual's semi-skilled	individual's skilled	-0/4	0/387	0/731
Team's semi-skilled	individual's skilled	0/867	0/387	0/125	
reinvestment	Team's semi-skilled	team's skilled	14/2	1/921	0/001
		individual's semi-skilled	-2/867	1/921	0/449
		individual's skilled	11/933	1/921	0/001
	Team's skilled	individual's semi-skilled	-17/067	1/921	0/001
		individual's skilled	-2/267	1/921	0/642
Individual's semi-skilled	individual's skilled	14/8	1/921	0/001	

The overall results show that skilled athletes, regardless of team or individual, have a lower level of vigilance. However, this finding was not observed in cognitive fracture in solstice groups.

Discussion and conclusion

The purpose of this study was to compare reinvestment and decision making in team and individual teams of skilled and semi-skilled players under stressed conditions. The results of multivariate analysis of variance analysis showed that the intergroup effect was significant for both velocity and decision accuracy. In decision-making speeds, there was only a significant difference between the semi-skilled basketball team and the badminton group, which means that basketball players had a faster decision-making process under pressure. This finding was in line with the results of Halsen and Powell (1993) and Spitzl (2010), because basketball players were able to play a role in decision-making, basketball players saw other players and opponent positions than badminton players in the slides. Hulson and Pauls (1993) showed skilled and novice players, films and dynamic slideshows of a variety of strategic situations in football. The results showed that skilled soccer players were quicker in starting, touching the ball, and overall response time, and were more accurate in making decisions about beginner players. On the other hand, in the variable of decision making accuracy, all differences except for the basketball and skilled badminton groups were significant differences between the groups. These findings are consistent with the Starkes and

Dicken (1984) results (Williams 2000). Individual players had a better decision-making process than team players. These results can be due to the type of exercise being studied. Basketball requires strength and speed and players need to implement several strategies for badminton players. Also, team players are more exposed to psychological stress than individual disciplines, and these factors are driven by motoring commands and consequently negatively affecting decisions (Clarley, 2001). In other words, in the present study, the difference in decision accuracy is more tangible than the speed of decision-making. In general, the difference in the decision-making accuracy of skilled people is more tangible than the speed of decision-making by semi-skilled individuals. Skilled athletes have tailor-made lessons learned than semi-skilled or beginner people, and can identify related objects in the field of vision faster than the beginner's. This ability enables them to quickly distinguish important objects such as balls from confusing background texture and reduce response time. These results are consistent with the research by Pollton et al. (2012), Suwin and Jones (2014). Their argument was that semi-skilled players, despite having learned to spot the ball, but suffered a loss of performance under pressure. According to Wickens (1992), the decision making of skilled people is more advantageous than those of the schoolchildren. They are able to select related signs based on perceptual design (more efficient processing of land information). Second, they have a list of probable stored hypotheses and actions in long-term memory and are able to control their

decisions for conventional probabilities and losses (large-scale knowledge of situational probabilities). Second, they have a stronger pairing between recognizing signs, forming the hypotheses and consequences of the decision are shown (stimulus compatibility - reinforced response based on recognition and pairing processes. Another argument is that beginners are less confident than those who are expert and more cautious in making decisions, instead they prefer to get more information before they make a response. Experienced people are not necessarily better informed in discovering and using advanced resources, but also more confident in making informed decisions. In a nutshell, skilled people are quicker and more accurate in identifying and calling game patterns and discovering related objects such as balls from underlying features, and anticipating opponent actions based on background information and deciding better. These results were consistent with the original study by Alard et al. (1980), which indicated that skilled basketball players were more accurate than non-players. This shows that skilled basketball players, special information, encode skills at a more meaningful and deeper level. The results of vigilant revision showed that skilled players had lower levels of half-gamer players. Previous research has shown that with increasing skill, people are less likely to pay attention to their already trained skills, due to higher levels of experience. According to Poolton et al. (2012), the high scores of a specially-minded review of the scale indicate significant cortical activation between motor planning and verbal analysis in certain areas of the cortex, compared to those with low rates.

In fact, greater coherence between these regions reflects the increasing role of the verbal analysis processes during motion implementation in people with a vigilant revision. So, it causes the run-downs in the players who are more likely to be scrutinized. In reviewing the subscales of investment, all differences were significant in self-awareness, general self-awareness, subjective (rumination) and review, except for the semi-skilled team with individual and individual skilled teamwork. But there was no significant difference in the cognitive fracture variable. In other words, the cognitive fragmentation of the skilled and semi-skilled athletes did not differ significantly. Poolton (2012) concluded that the reviewers who had a higher score on the rushing factor decision-making had a side-by-side judgment in favor of the host team. In general, the results of group comparisons show that skilled athletes, regardless of team or individual participation, are different in investment; in fact, skilled athletes have a lower alert level. These findings were consistent with the results of Master and Partners (2004), Kinderra (2011) and to some extent with the findings of Mullatra (2012). Their results indicated that the vigilant attention to the skill interferes with the implementation of that skill and stops automated response. Therefore, semi-skilled players in the present study, because

of their lower level of experience and the type of processing, need to call knowledge related to the assignment of the memory and to deliberately manipulate it to control the components of motor skills. And with the results of Ashford et al (2006) disagree. They believe that a clear review of the implementation processes can occur without their informed control, Maxwell (2008) also confirmed that the performers, using the work memory function and based on the experience and environmental stimuli provided, make a decision consciously. Therefore, motor responses that are automated through workout are executed without instantaneous memory processing. Learning in the form of obvious processing causes cognitive overload on working memory. Given the vigilant refresher of knowledge, the knowledge to control the implementation of motor skills that interferes with the performance of processing and the ability to respond to multiple assignments coincides. Understanding what is happening during the execution, typically during the initial stages of learning while the learner attempts Creates the most efficient motion pattern.

Through the practice and simultaneously with the improvement of automated control processing, the impact of this knowledge will be less pronounced. A step-by-step model controlled using the obvious knowledge associated with movement, (Menterz, 1992). Kinderra et al. (2015) achieved significant results in a research entitled "Behavioral Review, Complexity of Homework and Basketball decision-making under pressure conditions". The decision making accuracy of basketball players decreased under pressure and was moderated by the complexity of the task. 2. The DSRC scale is a significant predictor of the poorer response accuracy under high pressure conditions due to the complexity of the task. 3. Rhymes, the only significant factor predicting changes in response time (low complexity) and accuracy (high complexity). Since team players are more exposed to tensions, atmosphere and pressure than their teammates, there is still comprehensive information that can be derived from what the level of vigilance and skill level (skilled - semi-skilled).

There is no effect on the speed and accuracy of these athletes, especially basketball players and badminton players. So, according to the records of the above research and the importance of the success of players in the sports fields, which can display skills without loss of performance and with a minimum of vigilant revision, It seems that comprehensive research has not done so far on the impact of vigilant barbineering and performance under pressure conditions, such as vigilant monitoring levels and underlying factors such as skill level, gender, skill nature (team-solitary) on decision-making and performance. The findings of this study can provide a more comprehensive picture of the causes and factors of obstruction, taking into account all aspects.

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