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### Enhancing Factors Influencing Athlete's Intention to Engage in Archery

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#### Abstract

The purpose of this study was to examine the effects of motivation and coaching behavior on athletes' intentions toward participating in archery. A total of 246 archery athletes (158 males and 87 females) completed questionnaires assessing their attitude, intention to participate in archery, intrinsic motivation, coaching behavior, and the goal setting process. The results revealed that athletes' intentions to dedicate themselves to training in archery were positively associated with their attitudes toward archery, high levels of enjoyment, supportive behavior of the coaches, and an appropriate goal setting process. On the contrary, perceived pressure and negative coaching behavior were negatively correlated with the intention for systematic engagement with the sport, the attitude toward archery, motivation, and goal setting. The strongest predictors of athletes' intention to continue their engagement with the sport were attitudes toward archery, perceived behavioral control, enjoyment, and goal setting. Based on these findings, the study formulates specific suggestions for athletes and coaches.

Keywords: *attitudes and intentions toward archery, motivation, goal setting, coaching behavior*

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**Ενισχυτικοί Παράγοντες που Επηρεάζουν την Πρόθεση του Αθλητή να Ασχοληθεί με την Τοξοβολία**

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**Περίληψη**

Σκοπός της παρούσας μελέτης ήταν να εξετάσει τις επιδράσεις των κινήτρων και της προπονητικής συμπεριφοράς στην πρόθεση των αθλητών/τριών να συμμετάσχουν στην τοξοβολία. Συνολικά 246 αθλητές/τριες τοξοβολίας (158 άνδρες and 87 γυναίκες) συμπλήρωσαν ερωτηματολόγια που αξιολογούσαν τη στάση τους, την πρόθεσή τους να συμμετάσχουν στην τοξοβολία, τα εσωτερικά κίνητρα, την συμπεριφορά προπονητή και τη διαδικασία καθορισμού στόχων. Τα αποτελέσματα έδειξαν ότι η πρόθεση των αθλητών/τριών να αφοσιωθούν στην προπόνηση στο άθλημα της τοξοβολίας σχετιζόταν θετικά με τη στάση τους απέναντι στην τοξοβολία, τα υψηλά επίπεδα ευχαρίστησης, την υποστηρικτική συμπεριφορά των προπονητών και την κατάλληλη διαδικασία καθορισμού στόχων. Αντίθετα, η αντιλαμβανόμενη πίεση και η αρνητική συμπεριφορά των προπονητών συσχετίστηκαν αρνητικά με την πρόθεση για συστηματική ενασχόληση με το άθλημα, τη στάση απέναντι στην τοξοβολία, τα κίνητρα και τη διαδικασία καθορισμού στόχων. Οι ισχυρότεροι προγνωστικοί παράγοντες της πρόθεσης των αθλητών/τριών να συνεχίσουν την ενασχόλησή τους με το άθλημα ήταν η στάση απέναντι στην τοξοβολία, ο αντιλαμβανόμενος έλεγχος της συμπεριφοράς, η ευχαρίστηση και ο καθορισμός στόχων. Με βάση αυτά τα ευρήματα, η μελέτη διατυπώνει συγκεκριμένες προτάσεις για τους/τις αθλητές/τριες και τους/τις προπονητές/τριες.

Λέξεις κλειδιά: στάσεις και προθέσεις απέναντι στην τοξοβολία, κίνητρα, καθορισμός στόχων, προπονητική συμπεριφορά

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## Introduction

Archery is one of the least prominent sports in most countries in the world and at the same time, there is little scientific literature worldwide that refers to it. This study will investigate archery athletes' motivation, attitudes, and intentions for participation. Theoretical models explaining sports participation often draw from attitude theories (Hagger et al., 2024). A fundamental aspect that individuals consider when engaging in physical activity is its centrality to their lives and the pleasure or symbolic value it provides. Additionally, psychological factors such as motivation, potential inhibiting factors, levels of self-confidence and self-efficacy, individual factors, and demographic characteristics play a role in determining an individual's participation levels in sports (Beaton et al., 2011).

According to the most popular theory of attitudes, the Theory of Planned Behavior, individuals behave in a certain way based on their attitudes toward that behavior (attitudes toward behavior). This behavior also depends on the social influence they receive from other significant persons (subjective norms) and mainly is depending on their intention to perform or not this behavior (intention). Simultaneously, their behavior depends on the control they believe they have over this behavior (perceived behavioral control) (Ajzen, 2005).

Understanding attitudes toward participation in sport in general can help in understanding individuals' choices, intentions, and interests in sports. Analyses of related studies which discuss the importance of the planned behavior model in the prediction of intentions and behaviors according to participation in sports and physical activities demonstrated the power of the basic model's constructs correlations between the behavior, intention, attitudes, subjective norms, and perceived control (Hagger et al., 2002; Theodorakis, 1992; 1994). Another pertinent study, involving athletes from various sports, including archery, examined athletes' intentions to engage in sports. According to the planned behavior theory, athletes' intentions have been influenced by attitudes and subjective norms; however, the effect of perceived behavioral control and ethical obligation was a robust predictor of athletes' behavior (Kang et al., 2021).

Relevant meta-analyses have underscored the effectiveness of the theoretical model of "planned behavior" in predicting the intention to participate in sports and exercise programs (Hausenblas et al., 1997). Moreover, according to the theory of planned behavior, individuals are more likely to act on their behavioral intentions, and report intentions aligned with their attitudes and subjective norm, when their perceived behavioral control is high (Hagger et al., 2022). A systematic review of research examining multiple factors related to sport participation indicated the significance of attitudes, subjective norms, and perceived behavioral control based on the theory of planned behavior. In other words, participation in sports can be better interpreted, justified, and predicted based on this theory (Hopkins et al., 2022). Since there are no relevant studies in the literature that have dealt with the study and effects of attitudes in archery athletes, it is considered that understanding attitudes toward participation in archery can help us comprehend the choices of athletes and their intentions to dedicate themselves to the sport of archery.

Another study approaches sports participation based on the theory of planned behavior and Self-Determination Theory (SDT). According to the results, attitudes toward behavior and perceived behavioral control predicted the athletes' intention to participate in sports. The satisfaction of psychological needs, good relationships, and autonomy based on SDT had positive effects in predicting athletes' behavior. Based on the strength of the results, this study emphasizes the necessity of satisfying athletes' psychological needs for their commitment to sports (Park et al., 2020). According to SDT, developed by Deci and Ryan (1985), three basic needs determine individuals' behaviors: the need for competence, autonomy, and relatedness. Over the past two decades, researchers have employed SDT to establish motivation-based foundations in sports and exercise settings. Overall, the literature provides substantial evidence for the value of SDT in understanding exercise behavior, highlighting the importance of autonomous (identified and intrinsic) regulations in fostering physical activity (Ntoumanis, et al., 2020; Standage, 2023).

Studies related to motivation in archery are limited (Abu Samah et al., 2013; Gündüz et al., 2017). A systematic review of relevant studies based on SDT consistently supports a positive relationship between more autonomous forms of motivation and exercise, with intrinsic motivation being more predictive of long-term exercise adherence. This meta-analysis also indicates that competence satisfaction and more intrinsic incentives positively predict exercise participation across a range of samples and settings, emphasizing the importance of SDT in enhancing and participating in physical activities (Teixeira et al., 2012).

Goals in sports provide motivation and enhance the quality of training, offering clear expectations that help

athletes break away from routine, fostering determination and persistence. Athletes should set goals, particularly for factors within their control, aiming for outstanding performance, specificity, measurability, and challenging yet realistic objectives. According to the theory, putting in a significant effort is crucial for achieving goals, emphasizing the importance of engaging in the right activities at the right time and place. The principles of goal setting (Locke & Latham, 1990) are applicable to individuals in all areas of human activity, including sports. Goal setting is considered a frequently used psychological skill in sports, with generally positive effects widely accepted in theory. Meta-analyses in sports and various fields indicate that specific, personal, challenging, short-term, and long-term goals can maximize performance. This is because such goals activate individuals, motivating them to strive, boost self-confidence, commitment, and self-focus, guiding athletes toward optimal performance (Kyllo & Landers, 1995; Locke, & Latham, 2019; Williamson et al., 2022; Swan et al., 2021).

A recent systematic review of relevant research focusing on athletes, both in individual and team sports, and describing intervention programs utilizing goal setting theory, demonstrated the validity and effectiveness of goal setting principles. This review highlighted the utility of these principles for athletes, coaches, and sports psychologists. Coaches and sports psychologists should consider factors such as the difficulty level, specificity, type, athletes' initial abilities, degree of commitment, mode of feedback, and complexity when implementing goal setting strategies (Jeong et al., 2023). Considering the findings of these studies, exploring the application of goal setting principles in archery is valuable. This exploration could provide proper guidance for archery athletes in both training sessions and competitions, contributing to the maximization of performance in archery through the effective application of goal setting theory.

The overall behavior of coaches holds a decisive influence on athletes, impacting their motivation, attitudes toward archery, and the overall club atmosphere. However, it is particularly noteworthy that the way athletes behave and think significantly influences their performance. A relevant study underscores the impact of coaches' expressions, comments, and behavior on the athletes' behavior and thought processes (Zourbanos et al., 2006). Another study showed that when coaches are positive in thinking and behaving, then athletes have positive thinking and self-talk (Zourbanos et al., 2007). In general, coaches employing appropriate instructions, praise, and encouragement are associated with heightened athletic enjoyment. It has been observed that coaches' comments and behaviors can shape athletes' development, performance, and perceptions. Proper coach behavior has been linked to increased self-esteem and enjoyment among young athletes, leading to anxiety reduction. In conclusion, there is a substantial body of evidence highlighting the significant impact coaches have on athletes (Zourbanos et al., 2010).

This study aims to assess the behavior of archery coaches as perceived by athletes, acknowledging the widely accepted notion that effective coaches play a decisive role in the development and success of athletes across all sports, including archery. The performance, motivation, and emotional well-being of athletes are directly influenced by the positive or negative behavior of their coaches. A competent coach has the power to guide and inspire athletes to commit time and effort to the sport and training, thereby enhancing the athlete's intrinsic motivation (Moen et al., 2015).

We hypothesize that athletes' attitudes toward archery and perceived behavioral control can impact their intention to consistently train and fully engage in the sport. Furthermore, athletes' intrinsic motivation toward archery, coaching behavior, and goal setting are expected to influence their intention to actively participate in the sport.

## **Method**

### ***Participants and Procedure***

The participants in the study consisted of male and female athletes from all geographical regions of Greece. The representativeness of the sample was chosen based on the most recent data from the records of the Hellenic Archery Federation. Data collection was carried out electronically, following all procedures for the protection of personal data, based on the Federation's databases. A total of 246 archery athletes participated in the study. Specifically, 158 athletes (64.2%) were male and 87 (35.4%) were female. Regarding the professional activity of the participants, 65 individuals (26.5%) were students, 74 individuals (30.2%) were private employees, 23 individuals (9.4%) were university students, 39 individuals (15.9%) were public employees, and 44 individuals (18%) reported being in other professions (e.g., self-employed and retirees). The participants indicated their age categories as follows: 14-17 (25.6%), 18-20 (4.9%), 21-25 (5.7%), 26-30 (4.9%), 31-45 (26.8%), and over 46 (31.7%).

Regarding their educational background, 89 individuals (36.2%) were university or technical college graduates, 64 individuals (26%) were high school graduates, 42 individuals (17.1%) were middle school graduates, 16 individuals (6.5%) had graduated from post-secondary vocational education (IEK), while 7 individuals (2.8%) held a doctoral degree, and 27 individuals (11%) held a master's degree.

### **Instruments**

#### ***Attitudes, intentions, and perceived behavioral control toward archery***

Participants completed questionnaires assessing attitudes toward archery, intention for training, and perceived behavioral control according to the theory of planned behavior (Ajzen, 2002), through an instrument previously used in relevant studies with Greek populations (Theodorakis, 1994). Attitudes toward archery were assessed with five items. Example of attitudes items: *"Practicing archery is..."*. Answers were given on a seven-point scale a scale from "good" to "bad", "useful" to "not useful". Internal consistency (Cronbach's alpha) for the scale was .82.

Intention to practice archery was assessed with two items, for example, *"I intend to train regularly in archery for the next two years"* and the answers were given on a seven-point scale from "possible" to "impossible". Internal consistency (Cronbach's alpha) for the scale was .90.

Perceived behavioral control was assessed with three items, for example, *"For me training in archery for the next two years..."* and the answers were given on a seven-point scale from "possible" to "impossible". Internal consistency (Cronbach's alpha) for the scale was .82.

#### ***Intrinsic motivation Inventory***

For the assessment of intrinsic motivation, the Greek version of the Intrinsic Motivation Inventory (McAuley et al., 1989) was used, based on Goudas et al. (1994) study. The inventory consists of four subscales and seven items for each subscale.

*Interest-Enjoyment:* The items of this factor reflect the examinee's perception of whether they have an interest and enjoy participating in the activity. For example, *"I really like archery practice"* with answers given on a five-point scale from "Strongly agree" to "Strongly disagree".

*Effort - Importance:* The items of this factor reflect the examinee's perception of whether they are making an effort for the activity or program and whether they consider what they are doing is important. For example, *"I put a lot of effort into training"*.

*Perceived competence:* The items of this factor reflect the examinee's perception of their ability in the activity they are participating in. For example, *"I am satisfied with my training performance"*.

*Pressure and tension:* The items of this factor assess the degree to which the examinee feels pressure or tension from participating in the activity or program. For example, *"I feel anxious when I practice"*. Internal consistency (Cronbach's alpha) for the four subscales were .85, .71, .69, and .75, respectively.

#### ***Coaching Behaviour Questionnaire***

Williams et al. (2003) examined the validity of the Coaching Behaviour Questionnaire. The analysis showed a two-factor model. The scale consists of 16 items and measures two factors. The first factor expresses the coaches' supportive/emotional support and emotional control, and the second factor expresses negative behavior and negative activation, as perceived by the athletes. The Greek version of the instrument used in this study was validated by Zourbanos et al. (2006;2007). Examples of supportive behavior include: *"Criticism from my coach is done in the right way"*, *"My coach is calm and relaxed"*. Some examples of negative behavior are: *"My coach's behavior distracts me during competitions"*, *"My coach makes me feel nervous"*. Internal consistency (Cronbach's alpha) for the two subscales was .81 and .82 respectively.

#### ***Goal setting assessment scale***

Items of goal setting subscale from the Athletic Coping Skills Inventory-28 (Goudas et al., 1998; Smith et al., 1995), and items based on the principles of goal setting theory (Weinberg & Gould, 2007) were used. Six items were used: *"My goals for 2021 are ... to defeat all my opponents"*, *"... to win medals in competitions."*, *"... not to miss training"*, *"... to improve my technique"*, *"... to focus on specific performance and technique improvement points"*, *"... I have agreed with my coach on specific performance and technique improvement points"*. The answers were given on a five-point scale from "Strongly agree" to "Strongly disagree". Internal consistency (Cronbach's alpha) for the scale

was .69.

## Results

Table 1 presents means, standard deviations and correlations between the examined variables. In particular, attitudes toward archery were related to intention, motivation/competence, motivation/enjoyment, motivation/effort, positive coaching behavior, and goal setting at the  $p < .01$  level. The same results were observed with the intention of participation in training sessions. Particularly, the intention was related to motivation/competence, motivations/enjoyment, motivation/effort, and goal setting at the  $p < .01$  level and to positive coaching behavior at the  $p < .05$  level. Goal setting was related to all variables, attitudes, intentions, perceived behavioral control, motivation/competence, motivation/enjoyment, motivation/effort, negatively to motivation/pressure and positive coach behavior.

**Table 1.** Correlations between attitudes, perceived control, intention, motivation (enjoyment, effort, competence, pressure), coaching behavior (positive or negative) and goal setting.

	M (SD)	1	2	3	4	5	6	7	8	9	10
1. Attitudes	6.67 (.57)	1									
2. Perceived control	5.24 (1.35)	.201**	1								
3. Intention	6.32 (1.09)	.581**	.352**	1							
4. Motivation/competence	3.87 (.59)	.282**	.165**	.260**	1						
5. Motivation/enjoyment	4.58 (.45)	.678**	.193**	.518**	.325**	1					
6. Motivation/effort	4.33 (.53)	.416**	.180**	.344**	.398**	.536**	1				
7. Motivation/pressure	3.84 (.73)	.115	.032	.108	.238**	.149*	.004	1			
8. Coaching Behavior/Positive	4.39 (.55)	.298**	.161*	.280**	.199**	.473**	.333**	.121	1		
9. Coaching Behavior/Negative	1.77 (.70)	-.109	.020	-.058	-.170**	-.169**	-.161*	-.463**	-.408**	1	
10. Goal setting	3.91 (.59)	.31**	.24**	.34**	.31**	.38**	.40**	-.15*	.18**	.02	1

\*\* Correlation is significant at the .01 level (2-tailed).

\* Correlation is significant at the .05 level (2-tailed).

Regression analysis was used to examine if attitudes and perceived control can predict intention. The analysis showed that the regression model could predict 39.5% of intention,  $F(2,242)=78.98$ ,  $p < .001$ , with both independent variables making a significant contribution. Both attitudes toward archery ( $\beta = .53$ ,  $p < .001$ ) and perceived control ( $\beta = .25$ ,  $p < .001$ ) contributed positively to the prediction (see Table 2).

**Table 2.** Predicting intention from attitudes and perceived behavioral control.

	Beta	t	R <sup>2</sup>	F (2, 242)
Total prediction			.39	78.98**
Attitudes	.53	10.41**		
Perceived behavioral control	.24	4.81**		

Regression analysis was used to examine if motivation/competence, motivation/enjoyment, motivation/effort, motivation/pressure, positive coaching behavior, negative coaching behavior, and goal setting would predict intention. The analysis showed that the prediction model could predict 29% of the intention,  $F(7,237)=15.04$ ,  $p < .001$ . Only motivation/enjoyment ( $\beta = .38$ ,  $p < .001$ ) and goal setting ( $\beta = .16$ ,  $p < .05$ ) contributed significantly and positively (see Table 3).

**Table 3.** Intention prediction by the variables: Motivation/competence, Motivation/enjoyment, Motivation/effort, Motivation/pressure, Positive coaching behavior, Negative coaching behavior, and goal setting.

	<i>Beta</i>	<i>t</i>	<i>R</i> <sup>2</sup>	<i>F</i> (7, 237)
Total prediction			.39	15.04**
Motivation/competence	.05	.72		
Motivation/enjoyment	.38	5.33**		
Motivation/effort	.04	.64		
Motivation/pressure	.10	1.52		
Positive coaching behavior	.07	1.05		
Negative coaching behavior	.09	1.39		
Goal setting	.16	2.58*		

\* $p < 0.5$ , \*\* $p < 0.01$

## Discussion

Our results suggest that athletes' attitudes toward archery and perceived behavioral control can affect their intention to train regularly and commit to the sport. Additionally, athletes' intrinsic motivation toward archery influences their intentions and attitudes. The coach's behavior affects athletes' motivation and intention to engage with the sport, while appropriate goal setting influences athletes' attitudes and intentions toward archery.

The Self-Determination Theory (SDT) contributes to a deeper understanding of sports behavior, shedding light on factors that may limit an individual's motivation and intention to participate in physical leisure activities (Deci & Ryan, 1985). This study underscores the potency of SDT, particularly highlighting the significance of the intrinsic enjoyment factor (Goudas et al., 2013). In the context of an archery sports team, the conditions should be structured based on SDT principles to effectively motivate athletes, fostering a genuine love and commitment to the sport. Social and psychological factors that restrict motivation also impact individuals' intentions to engage in sports (Alexandris et al., 2011). The study reveals that higher levels of archers' intrinsic motivation correlate with a stronger intention to continue practicing in the subsequent years, and vice versa. A similar pattern is observed in their attitudes toward the sport and perceived behavioral control. This research underscores the importance of studying attitudes and the Theory of Planned Behavior in comprehending sports behavior.

The study validates the goal setting theory proposed by Locke and Latham (2019), emphasizing the importance of specific goals directed towards performance rather than focusing solely on outcomes. The findings indicate a positive correlation between adhering to proper goal setting principles and the enhancement of intrinsic motivation, attitudes, and the intention for consistent involvement in the sport. Goal setting emerges as a crucial factor influencing athletes' success, emphasizing its fundamental role as a tool for coaches in their daily coaching endeavors (Locke & Latham, 2013; Theodorakis, 1996).

Supportive coaching behavior emerges as a crucial factor with a decisive impact on athletes. Notably, the more supportive the coaches' behavior, the more positive the athletes' attitudes toward archery and perceived behavioral control, influencing their intention to practice in the subsequent years and dedicate themselves to the sport. Positive coaching behavior also correlates with the enhancement of athletes' intrinsic motivation toward archery, and it is associated with the effective application of goal setting principles.

The regression analyses revealed the main factors linked with the prediction of athletes' intention to participate regularly and focus on training for the following years and their general involvement with the sport. The first analysis of intention prediction highlights the importance of positive attitudes toward archery and secondarily perceived behavioral control. The second analysis highlights the importance of enjoyment of the sport that athletes are looking for, as well as the appropriate goal setting. The results verify the theoretical framework of the attitude theory (Ajzen, 2005) in predicting intention to participate in the sport of archery for the next two years. So, an environment of enhancement of positive attitudes toward the sport is necessary for the support of athletes and sport development. Likewise based on the motivation theory it appears that the main reason for athletes' participation in archery is the pursuit of pleasure and enjoyment. Finally, according to the goal setting theory,

applying the principles of goal setting not only helps to maximize performance but also helps to keep athletes long-term committed to the sport. Based on the above, the factors of attitudes toward the sport, intrinsic motivation, and appropriate goal setting contribute to the archers' intention to dedicate themselves for a long time and emerge as factors in the development of the sport. The understanding of the relationship between attitudes and incentives that drive individuals to sports can help the management of sports organizations to improve the services they offer and to meet the needs of their customers.

Our findings imply that the coach can influence archers' motivation and performance. Positive coaching behavior can affect the athletes' positive thinking, self-confidence, and most importantly their motivation for commitment to archery. In the relevant literature, it appears that intervention programs to restructure athletes' thinking and behavior are considered important tools for coaches or sports psychologists (Zinsser et al., 2006). For this reason, from a practical point of view, and considering the findings of this study, coaches should have a supportive attitude toward athletes and avoid negative expressions and irrational comments. When they communicate with the athletes, coaches should use only encouraging, supportive and edifying comments.

The findings of this study can contribute to the development of more impactful interventions focused on enhancing attitudes toward archery. By leveraging the attitudes theory, fostering intrinsic motivation, and implementing goal setting principles in training, the promotion of archery as a sport can be optimized. This approach is expected to yield improvements in athletes' performance, retention, and commitment to the sport.

#### **Significance for Sport or/and Physical Education or/and Quality of Life**

Positive attitudes towards the sport of archery, appropriate goal setting, and the supportive behavior of coaches positively influence athletes' motivation and performance. These factors are crucial and should be considered not only in competitive sports but also in physical education classes and exercise programs for health and quality of life. The development of positive attitudes, tailored goal setting, and supportive behavior should serve as a guide for every coach, educator, or fitness instructor.

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