The Influencing Factors of Behavior Intention of Teenagers Participating in Basketball Training-Based on the Perspective of Social Cognition

Jin Zhao

A Thesis Submitted in Partial Fulfillment of Requirements for
degree of Doctor of Philosophy in Exercise and Sport Science
November 2024

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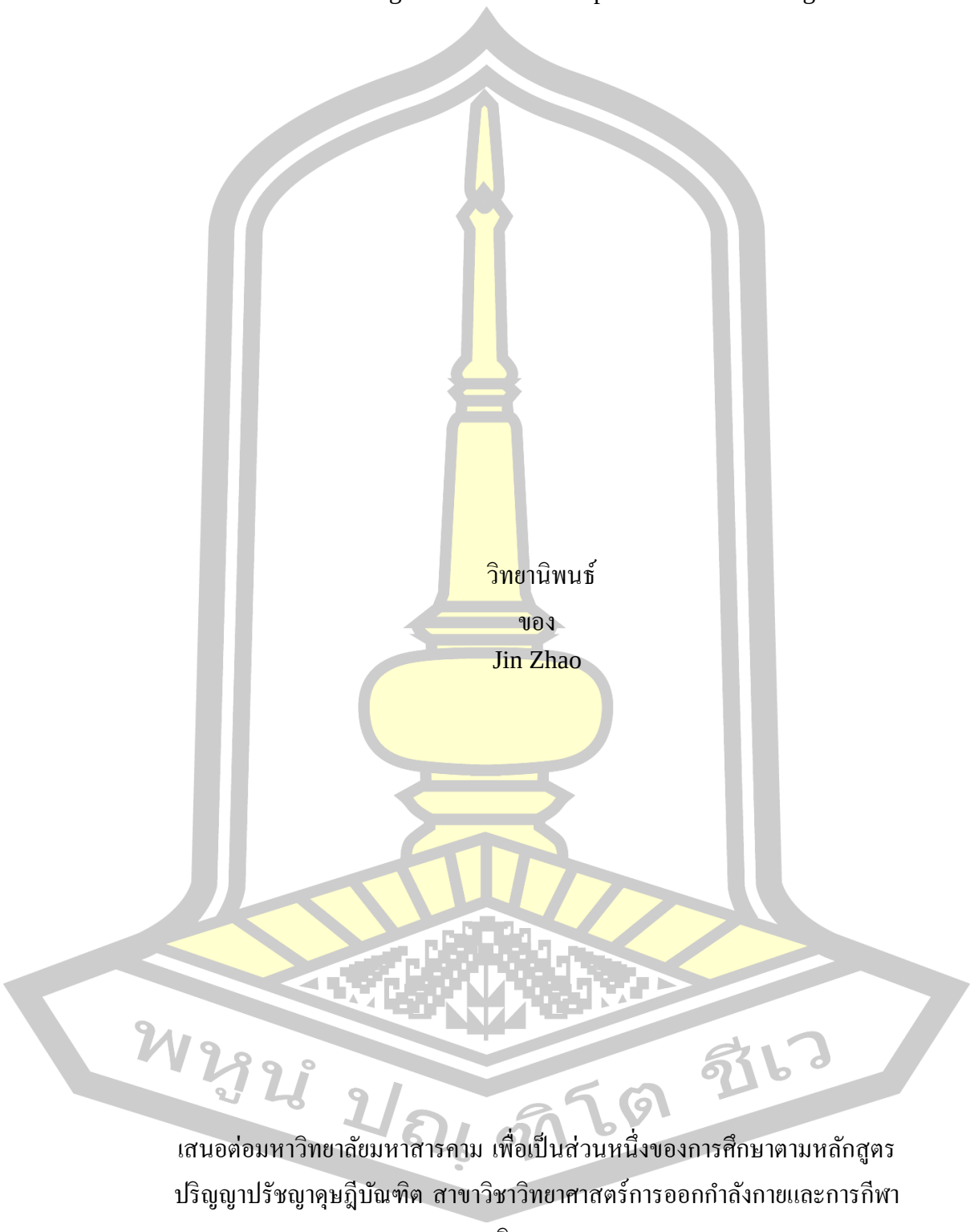

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TITLE The Influencing Factors of Behavior Intention of Teenagers Participating in Basketball Training-Based on the Perspective of Social Cognition

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ABSTRACT

This study aims to explore the key factors influencing adolescents' behavioral intentions to participate in basketball training, utilizing Social Cognitive Theory (SCT) as its theoretical foundation. Basketball, as a widely popular and dynamic team sport, not only enhances physical fitness but also fosters essential skills such as teamwork, discipline, and mental resilience. Its developmental and social benefits make it a crucial component of youth sports education. The research focuses on examining the impact of constructs such as self-efficacy, social support, situational context, and outcome expectations on adolescents' decision-making regarding sports participation. To achieve this, a rigorously revised and validated questionnaire was employed, targeting U12-U14 basketball teams across multiple clubs in Guangxi, ensuring the data collected is reliable and provides meaningful insights.

The objectives of the Research：

1. To reverse the questionnaire and investigate for social support, situation, selfefficacy, outcome expectations, and behavior intentiggof teenager partieipant inbasketball.

2. To identify the influence factors on the behavior and intention of teenagers participating and different genders in basketball training.

3. To determine the effect of intervention on the behavior intention of teenagers of different genders.

This study aimed to explore the social cognitive factors influencing adolescents' behavioral intention to participate in basketball training, analyze gender differences, and evaluate the effects of a three-month intervention. A total of 339 adolescents aged 12 to 14 years (56% male, 44% female) were recruited from basketball clubs in Guangxi Province, with 100 participants involved in a pilot test to validate the questionnaire. Based on Social Cognitive Theory (SCT), the revised questionnaire focused on five key dimensions: social support, situational factors, self-

efficacy, outcome expectations, and behavioral intention. The questionnaire demonstrated high reliability and validity (Cronbach's α: 0.896–0.974, KMO: 0.972, Bartlett's test $\chi^2 = 18107.471$, $p < 0.001$) through Confirmatory Factor Analysis (CFA).

A further 175 participants (50.29% male, 49.71% female) took part in a three-month intervention study, with pre- and post-intervention data collected. Regression analysis revealed that social support (e.g., Q3 → Q39: $\beta = 0.2133$, $p = 0.006$) and situational factors (e.g., Q16 → Q40: $\beta = 0.385$, $p = 0.001$) were significant predictors of behavioral intention. Post-intervention comparisons showed significant improvements across all dimensions: social support (3.98 → 4.15, $p = 0.0003$), situational factors (3.87 → 4.03, $p < 0.00001$), self-efficacy (3.75 → 3.96, $p < 0.00001$), outcome expectations (3.82 → 4.04, $p < 0.00001$), and behavioral intention (3.89 → 4.08, $p = 0.00002$). Gender analysis indicated that females exhibited greater improvements in self-efficacy and behavioral intention, although no statistically significant gender differences were found in overall post-intervention scores (e.g., behavioral intention: males 3.77, females 4.27, $p = 0.867$).

The findings demonstrate that targeted interventions effectively enhance adolescents' motivation to engage in basketball training and highlight the potential of gender-sensitive intervention designs. The validated questionnaire and intervention framework provide a scientific basis for future research and practice in youth basketball training.

Keyword : Social Cognitive Theory, Adolescent Sports Participation, Basketball Training, Gender Differences, Intervention Program

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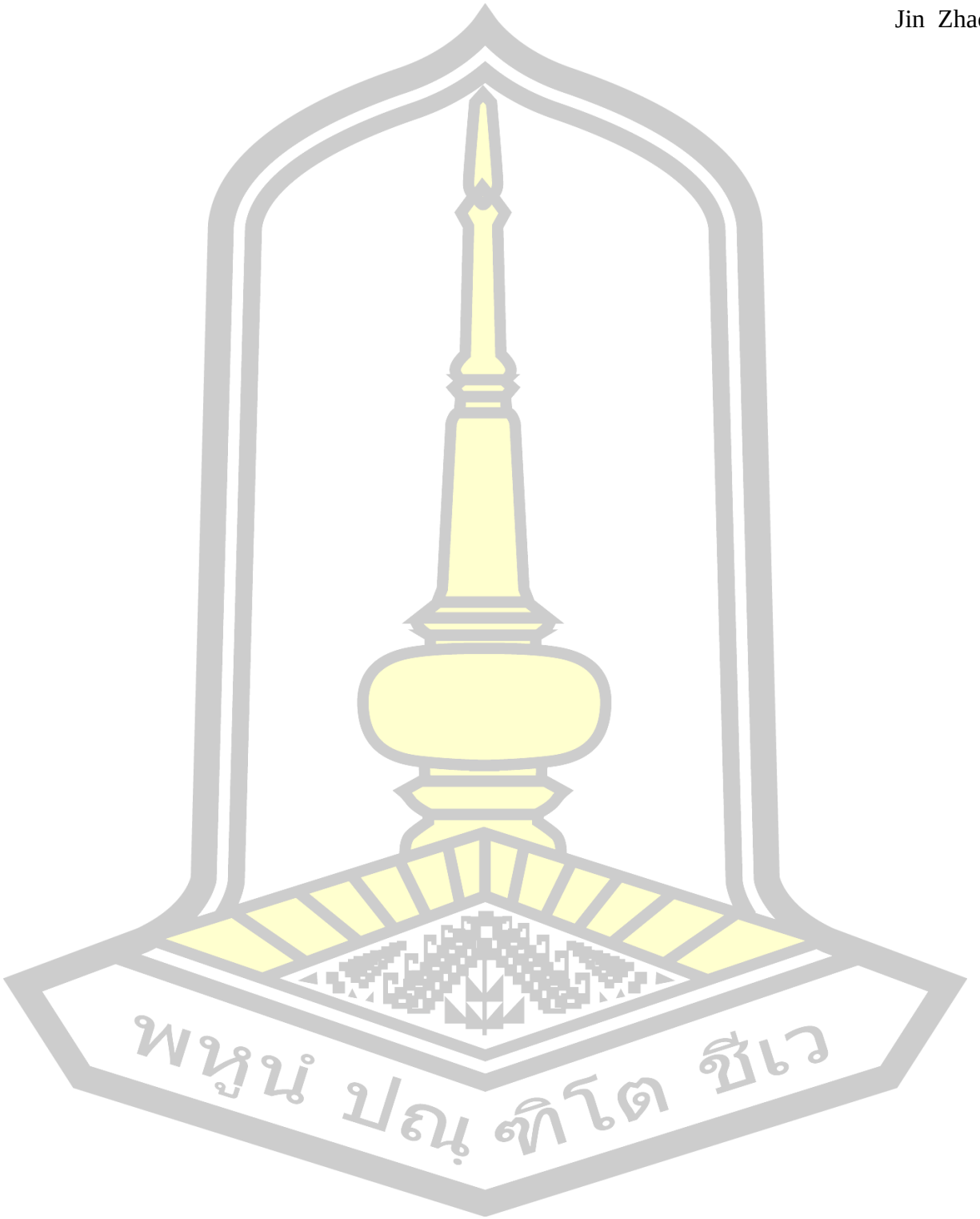

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CHAPTER I

INTRODUCTION

Background

Basketball is a unique sport, and more and more young people are attracted by its unique charm. Studying basketball has a good psychological quality for teenagers and plays a very good role in guiding teenagers to participate in basketball. All these require effective education methods and means to be achieved (Glad et al.,2013).Despite the considerable evidence showing the benefits of PA, 80.3% of adolescents (13-15 years old) failed to meet the recommendation of 60 minutes of PA daily (Hallal et al., 2012). Physical inactivity among adolescents is widespread worldwide (Sisson et al., 2010; Patnode et al., 2011).In 2016, adolescents aged 11-17 had a prevalence of physical inactivity of 81.0% (77.6% of boys and 84.7% of girls) globally (Guthold et al., 2020).Furthermore, few children take up sports after twelve years of age.(Thedin et al.,2012)Teenagers usually refer to people aged 10-24(Merriam-Webster,2012).The author pointed out that, judging from the FIBA competition system, the current age groups for five youth basketball competitions are mainly 10, 12, 14, 16 and 18 years old, so the age range of youth should be 10-18 years old. This article only studies basketball participants aged 12-14.The focus of this article is on those who are non-elite participants but nevertheless continue during their teenage years. Teenagers are in the best period of growth and development, which is the golden period of long knowledge. However, the task of studying is heavy, and the mental work is often done for a long time. So, there is physical dysfunction and psychological imbalance affecting the healthy growth of adolescents(Liang et al,2013).Participation in youth sports such as basketball offers many potential benefits for children and adolescents. Youth sports participation provides an avenue to develop peer relationships, self-esteem, and leadership qualities(Thomas,2005).It may also lay the foundation for an active and healthier adult lifestyle(McCabe,2016; Vella,2014; Carlson,1988). Basketball has one of the highest rates of youth sport participation and is well suited to offer young athletes opportunities to obtain these benefits. International studies have revealed that some of

the reasons that young people engage in sports are because of friends, the enjoyment of participation, and the ability to feel healthy(MacPhail,2003; Allender et al,.2006; Light, et al,.2011).Youth basketball training in Nanning, as a characteristic branch of the sports training industry, started late, but with its unique sports charm, it has been unanimously recognized by parents and teenagers. Teenagers participating in basketball training can learn the professional knowledge of basketball, improve their basketball level and sports ability, cultivate individual competition awareness and teamwork spirit in training and competition, integrate into the cultural heritage with a long history of basketball, and fully enjoy the competitive fun of basketball. Teenagers usually refer to people aged 10-24(Merriam-Webster,2012).

Another model that is widely used to predict behavior is SCT (Bandura 1997). This model classifies expectations into two distinct types: self-efficacy and outcome. Previous studies have indicated that both self-efficacy and outcome expectancy significantly affect behavioral intention (Baker-Eveleth and Stone et al. 2008). For example, Lin and Chiou(2010) showed that self-efficacy and outcome expectancy served as predictors in explaining students' intention to take a second language proficiency test. Several studies examined the impact of the interaction between self-identification and attitude on behavioral intention (e.g., Cook et al. 2002; Sparks and Shepherd 1992). These studies concluded that self-identification moderated attitudes with regard to behavioral intention. Consequently, we hypothesized that SCT may also show an improved ability to predict behavioral intention toward taking elective business ethics courses when combined with a measure of self-identity.Horn (2002) conducted extensive research on the impact of coaches in youth sports training, demonstrating that coaches play a crucial role not only in technical guidance but also in providing psychological support to athletes. Particularly in basketball training, a coach's encouragement and guidance can significantly enhance adolescents' self-confidence and motivation to participate. This finding complements previous research, indicating that the influence of coaches is vital for both boys and girls in sports training, especially in terms of emotional support and maintaining motivation.

However, the study by Fredricks and Eccles (2006) suggests that while extracurricular activities such as basketball training have positive effects on adolescents, they can negatively impact boys' behavioral intention when training time

conflicts with academic demands. The research found that excessive participation in sports training may lower boys' academic performance, thereby diminishing their motivation to train. This finding highlights the importance of balancing academic and training schedules when designing training programs to minimize the negative impact on academics, particularly among male adolescents. Horn (2002) conducted extensive research on the effectiveness of coaching in youth sports, emphasizing that coaches provide both technical and psychological support. The study found that effective coaching goes beyond teaching technical skills; it also involves fostering a positive motivational climate and offering emotional support, which are crucial for maintaining adolescents' engagement and performance in sports. Particularly in basketball, where teamwork and strategic thinking are vital, the coach's ability to inspire confidence and resilience in young athletes is paramount. This research underscores the need for coaches to develop strong interpersonal skills alongside their technical expertise to better support youth athletes.

The same situation exists in Nanning's youth basketball development. To provide a greater understanding of why some young people continue to participate in club sports, MacPhail suggested that further research should be conducted using qualitative methods to get in-depth insight into individuals' experiences and perceptions of club sports (Thomas et al., 2005). The overall predictability of SCT ranged from 5 to 52% among adolescents (Taymoori et al., 2008; Lubans et al., 2011; Martin et al., 2011). However, there are not many pieces of research that use SCT to predict the behavior and intention of Chinese adolescents. According to Bandura's theory, social support has a direct impact on physical activity (Bandura, 1997); nevertheless, Anderson's research showed that social support, through self-efficacy and self-regulation, had a better indirect impact on physical activity (Anderson et al., 2006). Several studies have shown that these four constructs (i.e., self-efficacy, outcome expectation, self-regulation, and social support) play an important role in promoting physical activity (Oliveira-Brochado et al., 2010; Anderson et al., 2006; Ievers-Landis et al., 2003; McAlister et al., 2008). Social cognitive theory is an appropriate model for investigating the relationship between these factors with each other on the one hand and with physical activity on the other (Ievers-Landis et al., 2003). Challenges and vague points existed, however, in the studies conducted to survey determinants of

physical activity using the social cognitive theoretical model; perhaps a review of these relationships within the framework of a theoretical model can answer some of these questions.

In recent years, research in sport has recognised the role of psychological skills in determining athletes' effectiveness and success. This recognition has led to the implementation of several psychological skills training (PST) programs for young athletes, involving the systematic and consistent practice of psychological skills (e.g. goal setting, imagery, stress management, and communication; Birrer & Morgan, 2010; Fournier, Calmels, Durand-Bush, & Salmela, 2012;Sheard & Golby, 2003)

Among other psychological skills, self-efficacy is considered a significant element of mental training (Barling & Abel, 1983). Self-efficacy is a construct derived from social cognitive theory and describes one's belief in being able to execute a specific task to obtain a certain outcome (Bandura, 1997). It is not concerned with the skills of an individual but rather with the subjective judgment of what one can do with the skills that he or she possesses (Bandura, 1986). Self-efficacy beliefs may influence motivation, for instance, the activities individuals choose to approach or the effort they expend on such activities, as well as the emotional reactions in response to failure or aversive stimuli (Bandura, 1997). People are less troubled by threats if they perceive themselves to have control over potential difficult tasks or situations (Bandura, 1989).

The present study extends the previous literature by examining the effectiveness of blended training intended to enhance the self-efficacy of young basketball players. So far, PST programs have been carried out by means of face-to-face interventions; this study adds to previous research by using web-based technology to implement a program for young athletes for the purpose of enhancing behavior intention Taking into account the important role of social cognitive determinants and the fuzziness of the research results, this study used social cognitive theory to study the behavioral intention of Nanning youth basketball players, and explored the relationship between these factors and their effects on behavioral intention. On the basis of the relationship established by previous studies, the definition of the relationship between variables in the theoretical framework of this study is shown in Figure 1, and the intervention is

carried out according to the influencing factors. Verify the effectiveness of the intervention effect and promote it.

The objectives of the Research

1.To reverse the questionnaire and investigate for social support,situation,self-efficacy,outcome expectations,and behavior intention teenager participant in basketball.

2. To identify the influence factors on the behavior and intention of teenagers participating and different genders in basketball training.

3. To determine the effect of intervention on the behavior intention of teenagers of different genders.

Research Questions

1.How can the questionnaire be revised and validated to ensure it accurately easures the social support,situation,self-efficacy,outcome expectations, and behavioral intention of adolescent basketball participants?

2. Do self-efficacy, social support, situational factors, and outcome expectations influence the behavioral intentions of teenagers participating in basketball, and will there be differences in these intentions between genders?

3. Can specific interventions improve the behavioral intentions of teenagers participating in basketball, and will the improvements differ by gender?

Hypothesis of the Research

1.Self-efficacy、social support、situation、Outcome expectations will have good reliability and factorial validity and will be predictive of behavior and intention to participate in basketball.

2. Teenagers are more likely to attend basketball practices if they believe this is what is expected of them by their peers, parents, or coaches. Adolescents who believed that the benefits of playing basketball outweighed the costs were more likely to participate in training, and male and female adolescents will attend basketball practice differently.

3. The intervention will increase participation in basketball training for both male and female adolescents.

Significant aspects of Study

1. The benefits of using SCT to develop new questionnaires:

Specifically, using SCT to develop new questionnaires can help researchers in several ways: better understand adolescents' motivation to participate in basketball. SCT emphasizes the role of factors such as self-efficacy, outcome expectations, and social influence in influencing behavioral intention. These factors can help researchers understand whether adolescents have the ability to participate in basketball, what they believe are the benefits and costs of participating, and who they are influenced by. SCT can also help predict whether adolescents will participate in basketball. SCT argues that behavioral intention is one of the best predictors of behavior, which means that SCT questionnaires can be used to predict whether adolescents will participate in basketball. Additionally, SCT can be used to develop interventions to promote adolescent basketball participation. By identifying factors that influence adolescent participation in basketball, researchers can develop interventions to increase adolescents' intention and behavior to participate in the sport.

There are also some challenges to using SCT to develop new questionnaires. For example, SCT is a complex theoretical framework that needs to be carefully considered in order to be applied effectively. Additionally, developing and validating an effective SCT questionnaire requires a significant amount of time and resources. Overall, using SCT to develop new questionnaires can provide a valuable tool for studying adolescent basketball participation and behavioral intention. Overall, using SCT to develop new questionnaires can provide a valuable tool for studying adolescent basketball participation behavioral intention.

2. It is useful to try to apply specific variables to physical training

Introducing variables such as social support, situation, self-efficacy, and outcome expectations into the study allows for an analysis of the factors influencing youth participation in basketball training in Nanning from a micro-research perspective. This approach represents a valuable attempt to apply specific variables within the

context of sports training, thereby broadening the practical scope and application of these variables.

3. Promote the development of youth basketball training in Nanning City

This paper explores the behavioral intention of Nanning teenagers to continue participating in basketball training and analyzes the key factors influencing these intention. The findings aim to identify the issues faced by adolescent basketball participants in training and to optimize and enhance the content of teaching and training programs. By designing and offering products and services that better meet the intrinsic needs of students and parents, youth basketball training, as an important part of promoting basketball in China, plays a crucial role in disseminating basic basketball knowledge, nurturing future basketball talent, and fostering a vibrant social basketball culture. By fully leveraging these functions, basketball training and promotion efforts can contribute significantly to the development of basketball in China.

Definitions of Terms

SCT is a broad theoretical framework that encompasses a variety of factors that influence behavioral intention and behaviors. This makes it an effective tool for studying adolescent basketball participation and behavioral intention. This can help researchers understand the complexity of adolescent participation in basketball. CT has been widely supported by research.

1. Social support

Social support originated in the 1970s when the concept was first introduced in psychiatric literature. Since then, scholars from various fields, including sociology, psychology, and psychiatry, have greatly expanded its meaning from different perspectives. Early studies on social support suggested that it is a network of relationships between an individual and others, which can offer assistance when the individual faces challenges and difficulties (Zhou & Feng, 2005). As research progressed, scholars gradually recognized that, due to the differences in the nature of relationships between people, there are also different functional types of social support. In 1989, Wellman categorized social support into four types based on

function: economic,emotional, companionship, and service. Russell distinguished social support into five categories: social network, self-esteem, material, information, and emotional support.Chinese scholar Hu Xiangming (1996) proposed that the social support system for Chinese youth should be an open system, mainly including family, school, and society. Yao and Shapiro (2016) believed that the role of the family, particularly that of parents, has an important socializing influence on children's physical activities, sports behavior, cognition, and emotions. Based on existing research, this study considers social support as a diversified system formed by individuals and the surrounding people or organizations. It mainly includes objective support (such as economic, material, instrumental, and social network support) and perceived subjective support (such as affirmation, satisfaction, support, and respect). Social support is an important component of an individual's environment and has a significant impact on the individual's cognition, decision-making, and behavior.

2. Situation

In Social Cognitive Theory, situation refers to the specific environment or context in which an individual is situated. This context includes not only the physical space but also the individual's cognitive and psychological representation of that environment. Situational factors interact with an individual's behavior, cognition (such as beliefs and expectations), and other personal factors (such as emotions and personality traits), influencing the individual's decision-making and learning processes. Specifically, the situation is a psychological representation of the external environment as perceived by the individual. It can include characteristics of the physical environment (such as the size of a room or the temperature) as well as characteristics of the social environment (such as the influence of family members, friends, and colleagues). These situational factors not only provide a framework for behavior but also shape and regulate the occurrence and development of behavior by influencing the individual's cognition and emotions. In the triadic reciprocal model of Social Cognitive Theory, situations interact with an individual's behavior and other personal factors, forming a dynamic system of mutual influence and determination. Therefore, understanding how situations influence behavior is crucial to grasping the complex mechanisms underlying individual behavior (Bandura, 1986).

Blake and Dick (2018) mentioned in their analysis of driving instructors' training standards and the quality of training that the hardware environment in which drivers are trained, as well as the transportation costs incurred by students, are significant factors. Oliveira and Pedro (2021) categorized training environments based on the nature of the training, such as schools, non-profit organizations, and profit clubs. Dong and Sun (2013) argued that the training environment consists of the political, economic, social, and technological contexts in which training institutions operate, and they used PEST analysis to examine the vocational training environment for sports agents in China. Fan (2020) believed that the training environment includes both the physical environment and the quality of training and has a significant impact on customer satisfaction and economic scale. Given that there is no unified concept of the training environment in the academic community, the author reflects on the practical situation and believes that, in essence, the training environment is the place where students receive baseball training and learn the sport. Training personnel need to provide training facilities, arrange training courses, and assess training outcomes, and students gain knowledge and specialized skills through this process, which is very similar to a school. Wang (2005) argued that the school environment refers to the space, conditions, and various factors within a specific campus that contribute to the learning, thinking, politics, morals, and psychological qualities of students. Based on this definition, the baseball training institutions where students are located can also be regarded as a type of school, playing similar roles to those of schools.

3. Self-efficacy

Self-efficacy as people's beliefs about their ability to achieve action goals in a particular domain (Bandura,1977). Self-efficacy is people's beliefs about their ability to achieve action goals in a particular domain. An individual's sense of self-efficacy plays a major role in their ability to accomplish goals, tasks, and challenges. Self-efficacy theory is at the heart of Bandura's social cognitive theory -which emphasizes the role of observational learning and social experience in personality development. The main concept of social cognitive theory is that an individual's actions and responses, including social behavior and cognitive processes, are in almost all cases influenced by the actions they have observed of others. Because self-efficacy is developed from external experience and personal cognition and has an impact on the

outcome of many events, it is an important aspect of social epistemology Self-efficacy represents an individual's perception of external social factors. According to Bandura's theory, people with high self-efficacy, those who believe they can perform well, tend to be more likely to see difficult tasks as things to master rather than to avoid Self-efficacy reflects the judgment of own ability to accomplish a specific health -behavior (Bandura,1977).

4. Outcome Expectations

Bandura (1997) pointed out that outcome expectations refer to an individual's estimation of the likely results of a specific behavior. Self-efficacy is an individual's judgment of their own abilities, while outcome expectations are judgments about the potential consequences of their actions. In Social Cognitive Theory, outcome expectations and self-efficacy are two core concepts. Outcome expectations can be expressed as an individual's judgment and anticipation of the possible results that a behavior will bring. Self-efficacy and outcome expectations are not two independent cognitive concepts; individuals with strong self-efficacy tend to have outcome expectations with more pronounced benefits, while those with weak self-efficacy tend to anticipate more potential losses. Besides self-efficacy, outcome expectations are also influenced by an individual's values, life experiences, and observed or imitated behaviors. When the source of an individual's outcome expectations is positive, it is more likely to lead to judgments that the outcomes will bring benefits, thereby promoting positive behavior. Conversely, when the source of outcome expectations is negative, it may compel the individual to judge that the outcomes will result in some form of loss, leading to the avoidance of that behavior (Bandura, 1997; Dong, 2018).

5. Behavioral intention

Based on Bandura's Social Learning Theory,the formation of behavioral intention in adolescents' basketball training is influenced by factors such as observational learning, self-efficacy, and outcome expectations. Bandura argued that behavior formation relies not only on direct experience but also on observational learning from others' behaviors and outcomes(Bandura, 1997).Specifically, in basketball training, adolescents observe role models (such as coaches, star players, or peers), which not only increases their interest in basketball but also helps develop a positive behavioral intention.

Furthermore, Bandura's Social Cognitive Theory highlights self-efficacy and outcome expectations as critical factors affecting behavioral intention. Self-efficacy, or adolescents' confidence in their ability to succeed in basketball training, significantly influences their intention to participate.Outcome expectations, or their anticipation of achievement and satisfaction from participating in basketball training, also play a crucial role (Bandura, 1997). In the context of basketball training in Nanning, selecting continuous participation intention as the research focus provides a comprehensive understanding of the psychological processes involved in adolescents' intention formation.This approach aligns with Bandura's theory and offers a solid theoretical foundation for the study, contributing practical guidance to basketball training practices.

6.Teenagers participating in basketball

This research focuses on adolescent basketball participants from five major basketball clubs in Nanning, Guangxi Province: Guangxi Jinma Basketball Club, Guangxi Polaris Basketball Club, Guangxi Future Basketball Club, Guangxi Growth Basketball Club, and Guangxi Zhanyi Basketball Club. A total of 350 participants, with 70 from each club, were recruited to ensure the diversity and representativeness of the sample. This diverse participant pool provides a solid foundation for analyzing the identified variables and exploring the behaviors and attitudes of adolescent basketball players.

CHAPTER II

REVIEW OF RELATED LITERATURE

1. Definition of Social Cognitive Theory (SCT)

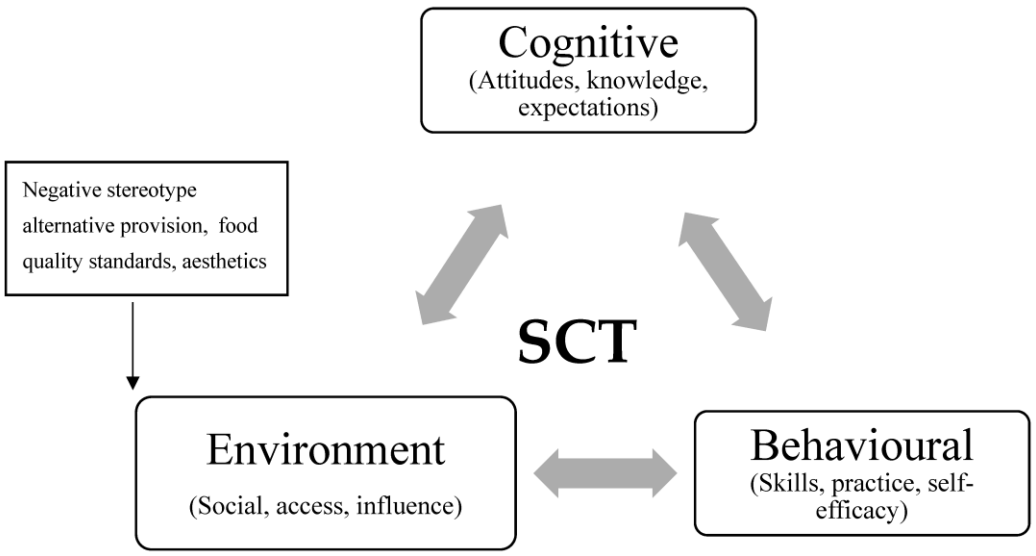

Figure 1 SCT theory

Social Cognitive Theory (SCT), proposed by Albert Bandura, originated from Social Learning Theory and evolved into an independent research field during the 1970s and 1980s. By the 1990s, SCT had become a significant theoretical framework in psychology. At its core, SCT emphasizes the dynamic interactions between individuals, behaviors, and environments, a model known as Triadic Reciprocal Determinism. This model posits that individuals influence their environment through cognitive functions and behaviors while simultaneously being affected by environmental and behavioral feedback, forming a dynamic bidirectional relationship (Bandura, 1986; Bandura, 1997). In his seminal work Social Learning Theory (1997), Bandura further explored the role of cognitive factors in behavior selection and environmental adaptation, providing a robust scientific basis for understanding complex human behaviors (Bandura, 1991).

In this study, the components of Social Cognitive Theory (SCT) are further specified into five key factors:

Self-Efficacy: Refers to an individual's belief in their ability to complete specific tasks or achieve goals. Self-efficacy determines the level of effort, persistence, and resilience an individual demonstrates when facing challenges. Individuals with high self-efficacy are more likely to actively participate in activities and show greater perseverance in the face of difficulties (Bandura, 1982).

Social Support: Defined as the emotional, informational, or material assistance an individual receives from their surrounding environment, family, friends, or organizations. Research indicates that social support plays a crucial role in shaping behavioral choices by enhancing self-efficacy or indirectly influencing outcome expectations (Zhou & Feng, 2005; Anderson et al., 2006).

Situational Factors: Situational factors encompass the physical and social environment in which an individual is situated. These factors not only directly influence behavior but also shape behavioral intentions through the perception and cognition of behavioral outcomes. For example, positive situational factors, such as accessible training facilities or a supportive cultural atmosphere, can increase an individual's willingness to engage in physical activities (Bandura, 1986).

Outcome Expectations: These refer to an individual's prediction of the potential consequences of their behavior, including material rewards, social recognition, or possible risks. Outcome expectations serve as a motivational force for behavior, with positive expectations typically enhancing the drive to participate (Bandura, 1997).

Behavioral Intentions: Behavioral intention is a critical variable in SCT for predicting behavior. It refers to an individual's plan or willingness to perform a specific action in the future. Behavioral intention is influenced by self-efficacy, social support, situational factors, and outcome expectations, and it ultimately determines the execution of actual behavior (Bandura, 1997).

By integrating the classic components of SCT with the specific factors in this study, the framework becomes more targeted and practical, making it well-suited for explaining the formation mechanisms of behavioral intentions among adolescent basketball participants.

Social Cognitive Theory (SCT) holds significant value in behavioral research and practical applications, offering precise predictions of behavior through its core variables and providing theoretical support across various fields. In education, SCT

provides a scientific framework for understanding and enhancing learning behaviors, particularly by improving students' self-efficacy and creating positive learning environments through role modeling, positive feedback, and contextual support (Bandura, 1993). In health behavior interventions, SCT is widely applied in areas such as physical fitness, smoking cessation, and weight loss, demonstrating that enhancing self-efficacy, leveraging social support, and optimizing situational factors can lead to long-term behavioral changes (Bandura, 2004). In sports psychology, SCT explains psychological and environmental factors influencing athletic behavior. For example, improving athletes' self-efficacy, strengthening social support, and optimizing training conditions can enhance participation rates and teamwork skills (Zimmerman & Kitsantas, 2005). In the context of adolescent basketball, SCT serves as the theoretical foundation for analyzing the formation of behavioral intentions, examining the relationships among self-efficacy, social support, situational factors, outcome expectations, and behavioral intentions. This study aims to uncover key factors that increase youth basketball participation rates, providing insights for training design and intervention strategies. Overall, SCT offers a structured system of variables and a scientifically validated foundation for understanding and predicting behavior, while also serving as a valuable tool for designing effective interventions in specific application scenarios.

2. Social Cognitive Theory on physical activity and sports

2.1 In China

A study conducted on college students from five different types of universities in Shanxi Province explored the gender differences in self-efficacy and its impact on physical exercise behavior. Using statistical analysis methods such as t-tests, variance analysis, and linear regression, the results indicated that male students had significantly higher self-efficacy than female students in physical exercise. Additionally, both male and female students exhibited higher self-efficacy when facing external resistance, while their self-efficacy decreased when unaccompanied. Overall, college students demonstrated lower levels of self-regulation behavior in physical exercise, particularly in goal setting, though they showed improvements in

adjusting plans as their academic grade increased. While students generally held low expectations for the outcomes of physical exercise, males had slightly higher expectations than females. They had high expectations for exercise to boost confidence, reduce boredom, and enhance friendships. Students also recognized the health benefits of exercise, such as disease prevention, strengthening of the heart and lungs, weight loss, and body shaping, which represented their highest level of outcome expectation. However, they faced several perceived barriers, including lack of encouragement from friends, inadequate athletic skills, concerns about athletic performance, and limited access to exercise facilities. Furthermore, internal barriers were more prominent than external ones. Among the four variables of Social Cognitive Theory, self-efficacy, self-regulation behavior, and perceived barriers significantly impacted college students' physical exercise behavior (Yu, 2022).

Another study focused on adolescents who participated in the 2021 Shanghai "PONY" League Junior Spring Baseball Challenge and the 2021 "Soft Silver Eagle" Cup Junior Autumn Baseball Challenge, analyzing the effects of social support and training environment on their intention to participate in baseball training. Using structural equation modeling and mediation effect tests, the study found that social support had a positive impact on adolescents' behavioral intentions, self-efficacy, and outcome expectations, further strengthening behavioral intentions through the mediating roles of self-efficacy and outcome expectations. Similarly, the training environment positively influenced adolescents' participation intentions, self-efficacy, and outcome expectations, enhancing behavioral intentions via similar mediating mechanisms. Additionally, the positive effects of self-efficacy and outcome expectations on participation behavior were validated (Zhang, 2022).

Another study, based on Social Cognitive Theory, constructed a model to examine the factors influencing Shanghai teenagers' participation in science and technology sports. The findings indicated that environmental factors (such as school and family environment) and individual factors (such as self-efficacy and outcome expectations) both significantly impacted teenagers' participation in science and technology sports. Specifically, school and family environments positively influenced self-efficacy and outcome expectations, with the school environment having a particularly strong effect on outcome expectations. Further analysis showed that

school and family environments not only directly affected participation behavior but also indirectly influenced it through the mediating role of self-efficacy. Additionally, outcome expectations played a key mediating role in the influence of environmental factors on participation behavior, making it one of the most significant factors affecting teenagers' participation (Zhu, 2021).

2.2 In other country

A study examined the relationship between Social Cognitive Theory (SCT) variables and the frequency of moderate to vigorous physical activity among high school students. The study used a consecutive seven-day recall tool to record students' daily engagement in moderate to vigorous physical activity. SCT variables included self-regulation, social situation, social outcome expectations, physical appearance outcome expectations, general health outcome expectations, negative outcome expectations, as well as self-efficacy for ability and self-efficacy for overcoming barriers. The findings indicated that these SCT variables could be adjusted through educational interventions to promote physical activity. In the regression analysis, four SCT variables were identified as significant, collectively explaining 31% of the variance in the number of days of moderate to vigorous physical activity among adolescents. The study highlights the practical value of SCT in understanding physical activity behavior frequency among youth (Petosa et al., 2005).

Another study focusing on employed women analyzed the psychosocial factors affecting their physical activity using various social-cognitive theories, including the Transtheoretical Model (TTM), Theory of Planned Behavior (TPB), Protection Motivation Theory (PMT), and Social Cognitive Theory (SCT). The study included 1,183 working women and divided them into two groups based on whether they had young children (302 women with children and 881 without). The study assessed social-cognitive factors, physical activity intention, and behavior (such as stage of change and energy expenditure). Regression analysis revealed that self-efficacy and intention were key predictors of physical activity in both groups, though there were differences in the relative contribution of theoretical constructs between the two groups. Overall, self-efficacy and intention were strong predictors of behavior, regardless of childcare responsibilities (Tavares et al., 2009).

In another school-based intervention study aimed at preventing obesity, researchers designed a randomized controlled trial based on SCT to increase physical activity among overweight and obese adolescent girls. The seven-month study involved 172 girls (87 in the intervention group and 85 in the control group), with participation from parents and teachers. Intervention activities included sports workshops, personal physical activity consulting, practical and competitive sports sessions, family exercise sessions, text message reminders, and newsletters. Results showed a significant increase in physical activity time and a reduction in screen time among participants, along with improvements in psychological variables such as self-efficacy, social support, and intention. This study demonstrates that an SCT-based school intervention can effectively encourage physical activity and improve lifestyle habits among obese adolescent girls (Bagherniya et al., 2018).

2.3 In other sports

A study used a prospective design to explore the relationship between social cognitive variables and physical activity among 277 university students. At baseline, social support, self-efficacy, outcome expectations, and self-regulation were measured to predict physical activity levels eight weeks later. Structural equation modeling showed a good fit between the social cognitive model and the data. Within this model, self-efficacy had the greatest total effect on physical activity, primarily mediated by self-regulation, which directly predicted physical activity. Social support indirectly predicted physical activity through its effect on self-efficacy, while outcome expectations had a small, non-significant effect. The model explained 55% of the variance in physical activity (Rovniak et al., 2002).

Another study examined the relationship between decision-making self-efficacy and decision-making performance among baseball athletes. Ten experiments were conducted with 78 participants to measure their decision-making self-efficacy and evaluate performance in terms of speed and accuracy. Results indicated that self-efficacy significantly influenced decision-making speed but did not improve decision-making accuracy (Hepler & Feltz, 2012).Social Cognitive Theory has also been used to predict athletes' intentions to use doping, with findings showing that moral

orientation can affect athletes' self-efficacy, which in turn indirectly influences their doping intentions (Barkoukis & Lazuras, 2013).

To explain the decline in youth sports participation, another study analyzed social and psychological factors. A survey of 882 middle school students found a significant positive correlation between perceived fitness and both self-efficacy and sports participation, with perceived fitness acting as a mediating variable between self-efficacy and sports participation (Arribas-Galarraga & Luis-de Cos, 2020).

2.4 In basketball

The application of Social Cognitive Theory (SCT), particularly Bandura's theory of self-efficacy, has become increasingly important in the field of sports, especially in enhancing athletes' motor skills and psychological resilience. Marquez et al. (2022) studied the impact of sports simulations through the video game NBA 2K22 on novice basketball players' skills. Using Bandura's four mediational processes—attention, retention, reproduction, and motivation—as a theoretical framework, this study evaluated the effects of virtual sports simulation on participants' dribbling and passing skills. The results indicated that simulation training significantly improved motor skills, with participants showing enhancements in both dribbling speed and passing accuracy. Additionally, participants reported increased psychological engagement with basketball, suggesting that video games can serve as an effective supplementary tool for skill acquisition by enhancing visualization and motivation.

Complementing this perspective, Brusokas (2014) explored methods to improve self-efficacy among young basketball players within a structured training program. Focusing on general, physical, social, and sport-specific self-efficacy, Brusokas demonstrated that targeted training significantly boosted athletes' confidence and performance. Using a comprehensive self-efficacy model, the study found that mastery experiences, social modeling, and positive reinforcement played crucial roles in enhancing young athletes' confidence, ultimately improving their career self-efficacy and sport-specific skills. The research emphasized the importance of integrating structured self-efficacy programs into basketball coaching to strengthen athletes' self-regulation, goal-setting, and competitive performance.

Martin (2008), based on Social Cognitive Theory, explored variables affecting athletic performance in athletes with disabilities. The study focused on 79 wheelchair basketball athletes, examining their performance, training, resilience, thought control, self-efficacy, and positive and negative affect. Results indicated significant correlations among the four types of self-efficacy (rs = .22–.78), as well as between self-efficacy and affect (rs = -.40–.29). Athletes who were able to overcome training barriers were confident in their basketball skills and thought control abilities, displaying more positive and fewer negative emotions.

Altavilla and Raiola (2014) investigated a modern basketball training method aimed at enhancing athletes' technical, tactical, and psychological abilities through targeted exercises. Findings showed that structured training helped athletes better analyze game situations and improve adaptability to uncertainty, allowing them to maintain consistent performance during games. This approach not only developed athletes' technical and tactical skills but also strengthened their mental resilience and independent thinking.

Chase et al. (1997) examined the relationships between coaches' efficacy expectations for their teams, assessments of opponents' abilities, perceived control over outcomes, perceived importance of success, and basketball performance. Four collegiate women's basketball coaches completed questionnaires before 10 games (N = 40). Results showed a significant relationship between coaches' efficacy and their perceived control over outcomes, with the assessment of opponents' abilities being a significant predictor of coaches' efficacy. Coaches with higher efficacy expectations demonstrated better predictions of their players' free throw performance and fewer turnovers.

Ren et al. (2022) conducted an online survey with 849 participants, using structural equation modeling to examine the moderating effect of gender on path relationships. Results indicated that perceived ease of use, flow experience, and perceived usefulness of the product were significant predictors of behavioral intention, with perceived usefulness and flow experience significantly influencing attitudes. Additionally, a gender moderating effect was observed in the path from perceived ease of use to behavioral intention. The study further explored the application of metaverse technology in basketball training, suggesting that a metaverse-based

learning experience can enhance flow experience, thereby increasing willingness to learn and overall effectiveness.

3. Importance of applying social cognitive theory in different ages

3.1 Teenager

Some researchers have applied Social Cognitive Theory (SCT) and its environment-based constructs to predict physical activity and fitness among middle school students. For instance, Martin et al. (2011) examined social cognitive variables and perceptions of the school environment in relation to physical activity and fitness in middle school students aged 10 to 14 (N = 506). Using multiple regression analysis, they found that barrier self-efficacy, peer support, and gender were the main predictors of physical activity, while fitness was significantly influenced only by gender. This study underscores the importance of barrier self-efficacy in promoting physical activity among adolescents and highlights the critical role of peer support within the school environment in encouraging physical activity.

Rovniak et al. (2002) further tested a model using a prospective design to examine the relationship between social cognitive variables and physical activity in a sample of 277 university students. Social support, self-efficacy, outcome expectations, and self-regulation were measured at baseline and used to predict physical activity eight weeks later. Results from structural equation modeling indicated that self-efficacy had the greatest total effect on physical activity, largely mediated by self-regulation. Social support indirectly influenced physical activity through its effect on self-efficacy, while outcome expectations had a minimal and nonsignificant impact. Overall, the social cognitive model explained 55% of the variance in physical activity.

Additionally, Yan Xiangrui and Wang He (2022) explored factors influencing adolescents' physical exercise intentions, revealing that parental support and self-efficacy had significant positive effects on adolescents' intention to engage in physical activity. The study also found that self-efficacy partially mediated the relationship between parental support and physical exercise behavior, highlighting the combined

importance of family support and self-efficacy in shaping adolescents' exercise intentions.

Fredricks and Eccles (2006) investigated the impact of extracurricular participation, including sports, on academic outcomes. Their longitudinal study found that while involvement in activities like basketball positively affects social development and engagement, it can also create challenges if it conflicts with academic responsibilities. For male adolescents, excessive training commitments may decrease academic performance, which in turn can reduce motivation to continue participating in sports. This study underscores the need to balance sports training with academic obligations to allow students to benefit from both without compromising either area.

3.2 Other ages

Ramirez et al. (2012) investigated the relationships among several Social Cognitive Theory (SCT) constructs (e.g., self-efficacy) and physical activity behaviors in children. The study included 479 fourth- to sixth-grade students from six elementary schools across five school districts in the Southwestern USA. The students completed SCT-based questionnaires and wore pedometers for five school days to measure their physical activity levels. Data analysis included confirmatory factor analysis and structural equation modeling, with results indicating a good fit for the model. Self-efficacy was found to be a strong predictor of social support, perceived barriers, and outcome expectations. However, the model explained only a small portion of the variance in physical activity behaviors, suggesting a need for further exploration of environmental factors influencing children's physical activity decisions.

Booth, Bauman, and Owen (2002) studied physical activity among 449 Australian adults aged 60 and older, assessing self-reported physical activity levels as well as a range of social-cognitive and perceived environmental factors. Participants were categorized as sufficiently active or inactive based on estimated energy expenditure from their self-reported physical activity. Results showed that males were more physically active than females, and the highest activity levels were found among those aged 65-69. High self-efficacy, participation of friends and family, perceptions of safe walking paths, and access to local facilities were significantly associated with

higher physical activity levels. The study highlights the importance of social support, facility accessibility, and neighborhood safety as modifiable factors that can inform policy and intervention strategies to promote physical activity among older adults.

Anderson et al. (2006) tested an SCT-based model of physical activity using structural equation modeling among 999 adults recruited from churches in Southwestern Virginia. The model assessed the effects of age, race, social support, self-efficacy, and self-regulation on participants' physical activity levels. Results indicated that self-regulation had the strongest effect on physical activity, while self-efficacy had a smaller, independent effect. Social support indirectly influenced physical activity by enhancing self-efficacy and self-regulation. The model explained 46% of the variance in physical activity, showing a good fit to the data and emphasizing the importance of self-regulation and social support in promoting physical activity.

Ayotte et al. (2010) examined the associations among self-efficacy, outcome expectations, perceived barriers, self-regulatory behaviors, and social support in predicting physical activity among 116 middle-aged and young-old married couples. Data were collected via a mail-in survey. The study found that self-efficacy was directly and indirectly related to physical activity through its influence on outcome expectations, perceived barriers, and self-regulation. These results suggest that interventions targeting multiple social cognitive constructs, including self-efficacy and social support, may help increase physical activity levels among middle-aged and older adults.

4. Importance of applying social cognitive theory in different gender

Mendes et al. (2015) conducted a study to explore gender differences in imagery ability among basketball players. The aim of the study was to compare the imagery ability between male and female basketball players. The sample consisted of 62 adolescents with an average age of 15 ± 1.2 years (31 males and 31 females), selected for convenience. The Portuguese version of the Movement Imagery Questionnaire – 3 was used to assess participants' abilities in kinesthetic, internal visual, and external visual imagery. The T-test for independent samples was

performed using SPSS 21.0, with $p \leqslant 0.05$ considered significant. Results showed that males scored significantly higher in kinesthetic imagery (average 24.35) and also had a higher total score on the questionnaire (average 75.19), suggesting that males have a superior kinesthetic imagery ability compared to females. Additionally, both genders scored higher in the internal visual imagery mode, suggesting it may be the most effective training method for basketball players.

Eccles and Harold (1991) applied the expectancy-value model to study the role of gender in sports participation, analyzing differences in motivation and expectations between males and females. The study found that gender differences affect not only the frequency of participation but also attitudes toward sports. In competitive sports activities like basketball training, males tend to be motivated by competition and physical challenges, while females place more importance on social and emotional support. This study provides theoretical support for examining the impact of gender differences on behavioral intention and highlights the importance of considering gender-specific factors when designing sports programs to address the different motivational needs of each gender.

In a small-scale experiment, Slingerland et al. (2013) examined the effect of single-gender grouping within mixed-gender physical education (PE) classes on girls' perceived competence and in-class physical activity. The study involved 216 students from 13 classes in grades 7-9 (42% girls, totaling 90 girls), who played basketball in both mixed-gender and single-gender teams. Questionnaires and heart rate monitors were used to assess participants' perceived competence and moderate-to-vigorous physical activity (MVPA). Results showed that girls' perceived competence increased in single-gender groups, while physical activity levels were high in both mixed-gender and single-gender settings. The study suggests that PE teachers might consider using single-gender grouping in invasion games (e.g., basketball, handball, soccer) to enhance girls' perceived competence.

Wallace, Buchan, and Sculthorpe (2019) investigated whether single-gender or mixed-gender PE classes were more effective in increasing physical activity levels among girls. A sample of 120 girls aged 12-15 wore accelerometers while participating in basketball games, and time spent in low (LPA), moderate (MPA), vigorous (VPA), and moderate-to-vigorous physical activity (MVPA) was compared

between single-gender and mixed-gender lessons. Perceived effort and enjoyment were also measured on a three-point scale after each session. The results indicated that girls spent significantly more time in MVPA ($p = 0.01$) and VPA ($p = 0.006$) in the single-gender environment and significantly less time in LPA ($p = 0.014$). Although girls reported that their effort did not change with the presence of boys, they showed a preference for the single-gender environment. The study suggests that separating PE classes for game-based activities could help girls achieve higher levels of physical activity, leading to greater health benefits.

5. Relationship between behavioral intention and SCT

5.1 Situation and Behavior intention

Many studies have shown that outcome expectations, as an important component of individual cognition, can have a positive impact on participation behavior and intention. In 2008, Zhao Yan used Social Cognitive Theory to study the factors influencing physical exercise among college students in Beijing. The results showed that outcome expectations are closely related to college students' behavioral intentions for physical exercise and have a positive effect (Zhao, 2008). Regarding the relationship between the training environment and participation intention, Chinese scholars have conducted relevant research, analyzing the sports training market and the development of training institutions. After examining the factors influencing adolescents' participation in extracurricular sports training, it was found that factors such as the training school's venue, equipment and facilities, teacher attitudes, professionalism of the training, and training atmosphere all play an important role in influencing adolescents' participation behavior (Di, 2019).

In addition, Chinese scholars have conducted extensive research on the relationship between self-efficacy and participation intention, which can be divided into two main categories: first, studies on the direct impact of self-efficacy on participation intention; and second, studies using self-efficacy as an intermediary variable to explore the interrelationship between the external environment and participation behavior and intention. In a study involving 1,200 middle school students, results showed that self-efficacy has a positive effect on students' intention to participate in physical exercise and can serve as an intermediary variable in the

pathway through which environmental factors influence the behavioral intention of physical exercise (Chen & Zhou, 2007).

5.2 Self-efficiency and Behavior intention

Ericsson, Krampe, and Tesch-Römer (1993) studied the relationship between training frequency and skill development, introducing the well-known "deliberate practice" theory. This theory emphasizes that sustained and targeted practice is crucial for skill acquisition. It suggests that the accumulation of training experience influences an individual's self-efficacy and behavioral intention, especially during adolescence, where the frequency and richness of training experiences directly impact their intention to participate in sports activities and their performance levels.

In a study on beginner weight training classes, Gao, Xiang, Lee, and Harrison (2008) examined the relationships among self-efficacy, outcome expectancy, behavioral intention, and actual behavior over time. The study involved 109 participants, assessing their self-efficacy, outcome expectancy, and intention for future weight training, with attendance records and workout logs used to measure actual behavior. Correlation analysis showed significant positive relationships among all variables throughout the program. Multiple regression analysis indicated that outcome expectancy initially played a more significant role than self-efficacy in predicting behavioral intention and actual behavior, although self-efficacy became more influential midway through the program. This study enhances our understanding of the factors influencing motivated behaviors in college physical activity classes.

Maddux, Norton, and Stoltenberg (1986) used a persuasive communication paradigm to examine the relative contributions of self-efficacy expectancy, outcome expectancy, and outcome value (importance) in influencing and predicting behavioral intention. A sample of 88 college students was asked to respond to a promotional brochure discussing a broken-record technique. Outcome expectancy was manipulated independently of self-efficacy expectancy and showed a main effect on behavioral intention, while self-efficacy expectancy did not. Outcome value manipulation also had a main effect on intention, although interpretation of this effect was complicated due to issues with the manipulation check. Correlational data revealed that self-efficacy expectancy, outcome expectancy, and outcome value were

all significant predictors of intention, with each component contributing independently to the prediction of behavioral intention.

While many health communication studies have validated self-efficacy as one of the most proximal determinants of behavioral intention, Kim, Chung, and So (2019) proposed that success expectancy (i.e., perceived likelihood of goal achievement) can act as a mediator between self-efficacy and health behavior intention, which may explain inconsistencies in findings regarding self-efficacy. In an online experiment (N = 336), the similarity of the source in health messages was manipulated, and results indicated that success expectancy indeed mediated the relationship between self-efficacy and behavioral intention. Success expectancy also mediated the effect of source similarity on behavioral intention, while neither task nor coping self-efficacy showed such effects. These findings suggest that health promotion messages focusing on enhancing success expectancy may be more effective in inducing health behaviors than messages promoting self-efficacy alone, especially in contexts where individuals with high self-efficacy may not consistently perform recommended health behaviors.

5.3 Social support and behavioral intention

In 2021, Luo Chong and colleagues conducted a study on the factors influencing Chinese adolescents' intention to continue participating in school football. The results indicated that high levels of social support were a core condition for adolescents with a strong intention to continue participating, showing a positive influence on their behavioral intention. Similarly, Pan Lixia et al. (2020) found that social support positively influenced female amateur runners' intention to participate in marathons, with differences observed between genders. Shen Liang (2019) used grounded theory to explore the mechanisms by which social support affects physical activity behavior, revealing that social support primarily impacts physical activity intention through dimensions such as self-efficacy and exercise enjoyment.

At the theoretical level, Social Cognitive Theory suggests that when individuals make behavioral decisions, they are influenced by the opinions and attitudes of important groups around them. The stronger the support and affirmation from these groups, the more likely it is to promote the intention to carry out the behavior. Thus, it

can be inferred that social support may also play a positive role in influencing adolescents' behavioral intention to participate in baseball training.

5.4 Outcome expectations and behavioral intention

Many studies have demonstrated that outcome expectations, as a critical aspect of individual cognition, can positively influence behavioral intention to participate. A study on the impact of physical exercise on college students in Beijing, based on social cognitive theory, found that outcome expectations positively affect students' physical exercise, with a strong link between exercise and behavioral intention (Zhao, 2008). Similarly, research in Shanghai on factors affecting youth participation in science and technology sports revealed that both school and family environments significantly shape outcome expectations, which in turn positively influence participation behavior (Zhu, 2021).

At the theoretical level, Social Cognitive Theory clarifies the relationship between outcome expectations and behavioral intention to participate. The more positive an individual's outcome expectations are for a particular task or event, the more likely they are to engage in it. With the influence of cognitive factors, individuals are more inclined to develop the behavioral intention to commit to the task and make efforts to accomplish it.

6.The Application of Confirmatory Factor Analysis in Validating the Construct Validity of Questionnaires

Confirmatory Factor Analysis (CFA) is a pivotal statistical technique in psychological research and questionnaire development, extensively utilized to validate the construct validity of scales. CFA enables researchers to test whether the data fit a hypothesized measurement model, thereby confirming the theoretical structure of psychological constructs.Brown (2006) elaborates on the application of CFA in assessing the dimensionality of psychological measurement instruments, emphasizing its role in verifying the alignment between questionnaire dimensions and the anticipated theoretical framework. This alignment is crucial for developing robust psychometric tools.Additionally, Shevlin and Miles (2005) discuss the importance of CFA in distinguishing between competing models, allowing researchers to identify the model that best represents the data. This process ensures that the questionnaire

structure is both theoretically sound and empirically supported.In summary, these studies underscore the significance of CFA in validating the construct validity of questionnaires, ensuring that their dimensions accurately reflect the theoretical constructs they are designed to measure.line (2015) further explored the concepts of construct validity and reliability in questionnaires, highlighting that construct validity is key to assessing whether a scale accurately measures the psychological constructs it was designed to assess. High levels of construct validity and reliability indicate consistency among items within the scale and accurate measurement of the underlying variables, providing a reliable foundation for subsequent empirical research.

7. Experimental Period

Selecting a 12-week experimental period has gained widespread support across various fields of research. Firstly, a 12-week time frame is sufficiently long for participants to adapt to new training or interventions and to observe significant physiological or psychological changes (Hawley & Burke, 2010; Kraemer & Ratamess, 2004). Additionally, a 12-week experimental period is highly feasible in practice, as it can effectively utilize the duration of a semester while minimizing participant attrition (Thomas, Nelson, & Silverman, 2015). This time frame has been proven effective in studies on exercise training, nutritional interventions, and behavior modification, and thus has been widely adopted (Baechle & Earle, 2008). Finally, 12 weeks is also long enough to guide participants in establishing new behavior patterns, which is crucial for facilitating long-term behavior change in psychology and behavioral science (Prochaska & DiClemente, 1983).The paper by Buchan et al. (2011) provides valuable insights into physical activity interventions, particularly in terms of the duration and intensity of exercise and their effects on physical fitness components and cardiovascular risk factors in adolescents. The study found that a 7-week intervention with varied intensity led to significant improvements in physical fitness markers, such as agility and cardiorespiratory fitness, especially in high-intensity groups.Findings from this research support the idea that significant changes in physical and behavioral measures can occur even in shorter periods. Your 12-week duration should, therefore, be sufficient for observing comprehensive results, potentially yielding greater improvements or sustained outcomes in metrics like social

support, self-efficacy, and behavioral intentions.In the study by Bruner et al. (2020), it is mentioned that the duration of interventions has a significant impact on the effectiveness and outcomes of the programs. Although their research covered programs of various lengths, it is generally believed that longer interventions (such as 12 weeks or more) help consolidate participants' skills and habits, provide sufficient time for gradual improvement and feedback, and ultimately enhance the effectiveness and long-term sustainability of the programs.

Chapter Summary

In summary, Social Cognitive Theory has been maturely and widely applied in the field of sports, and numerous research findings have supported the reliability and feasibility of selecting Social Cognitive Theory as the theoretical foundation for this study. Many studies on sports participation behavior have not only confirmed the suitability and adaptability of Social Cognitive Theory in researching factors influencing youth participation in basketball training but also provided a theoretical basis for constructing the hypothetical model in this study. By organizing the relationships between relevant variables and participation intention, the author gained a clearer understanding of the internal mechanisms, ensuring the reasonableness of the proposed hypotheses.

CHAPTER III

RESEARCH METHODS

Research Design

This study was a comprehensive exploration of adolescent basketball participants' behavioral intentions, including designing a questionnaire based on theoretical constructs, validating its reliability and validity through expert review and pilot testing, distributing the questionnaire to ensure a representative sample, analyzing the collected data to identify key influencing factors, implementing targeted interventions tailored to these factors, grouping participants to compare gender-based differences, and then intervening in the results by grouping and finally modeling.

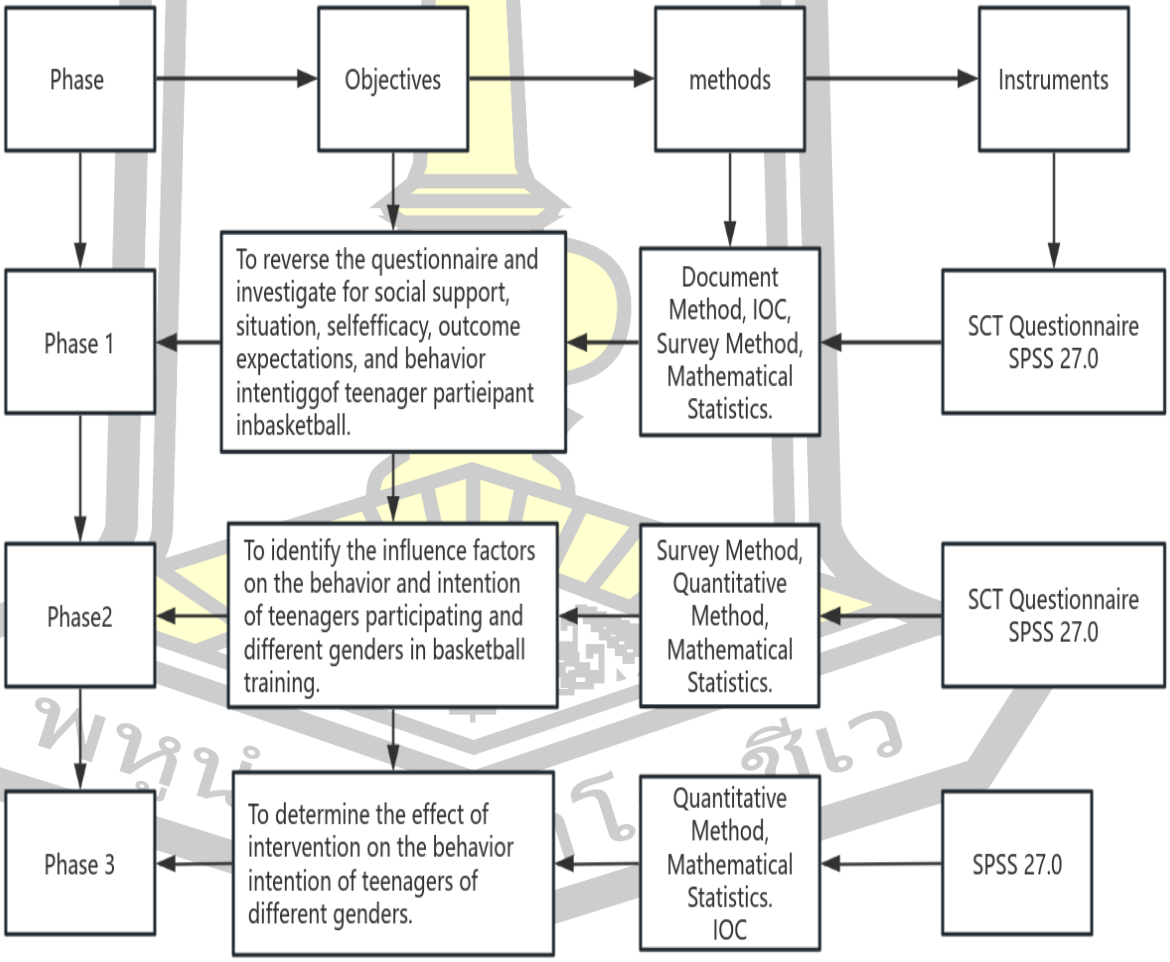

Figure 2 Study Design

Phase 1

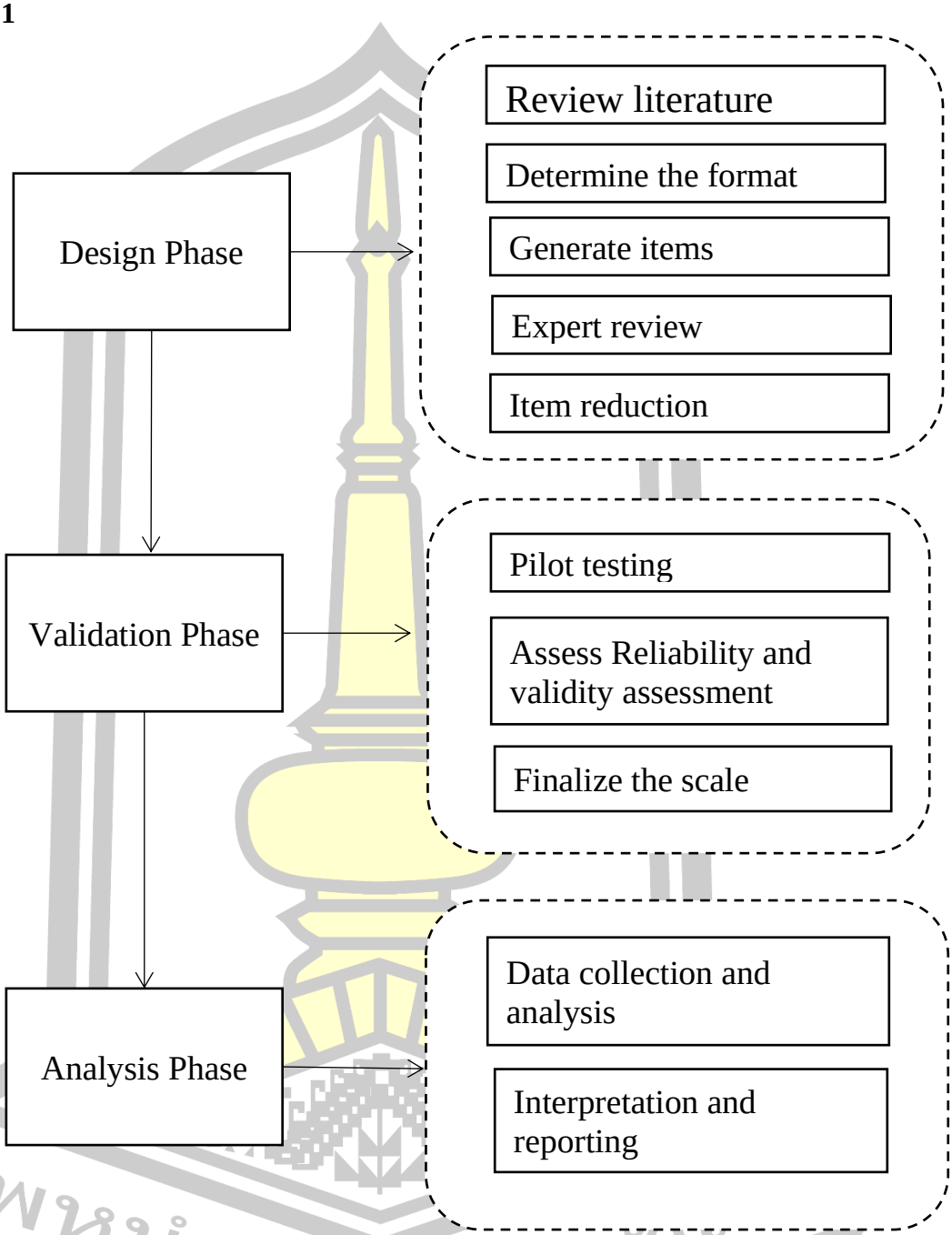

Figure 3 Procedure of Phase 1

Objective

To reverse the questionnaire and investigate for social support, situation, self-efficacy, outcome expectations, and behavior intention teenager participant in basketball.

Creating research tools and quality testing

Before starting, clearly define the social cognitive factors of interest. These factors may Self-efficacy, social support, situation, Outcome expectations. Ensure that these factors have theoretical support in the literature and are relevant to your research question. Identify five experts or researchers in the field with experience and knowledge of social cognition.

A five-member expert panel assessed the questionnaire's validity using the Indexes of Item-Objective Congruence (IOC) method. Five experts from different research fields evaluated the interview outline and made suggestions from different perspectives. The list of experts is as follows (Table 1)

Table 1 List of Evaluation Experts

Name	Area	University	Professional Title
Expert 1	Sport Management	Nanning Normal University	Professor Dean
Expert 2	Sport Psychology; Physical Education	Guangxi College for Preschool Education	Professor Dean
Expert 3	Sport Psychology; Physical Education	Guangxi College for Preschool Education	Professor Dean
Expert 4	Physical Education and Sports Training	Nanning Normal University	Professor
Expert 5	Physical Education and Sports Training	Guangxi University	Professor

The expert group assessed the consistency between the research purpose and the question design at this stage. In the evaluation form, "-1" indicates that the question is inconsistent with the purpose, "0" means uncertain, and the score "1" indicates that the question design is consistent with the research purpose. Scored by five experts, after calculation, when the value of the Index of Item-Objective Congruence (IOC) is greater than or equal to 0.5 (≥ 0.5), the project is considered valid (Turner & Carlson, 2003).

Population and sample size

Participants were proportionally selected from five basketball clubs: Guangxi Jinma Basketball Club, Guangxi Polaris Basketball Club, Guangxi Future Basketball Club, Guangxi Growth Basketball Club, and Guangxi Zhanyi Basketball Club. Initially, 20 athletes from the U12 and U14 groups were selected from each club to ensure equal representation. Priority was given to athletes who demonstrated consistent participation in training and competitions, ensuring that the data reflected the attitudes and behavioral intentions of highly engaged participants. The selection process also ensured gender and age balance, aligning with the actual demographic composition of the teams. Coaches were consulted during the selection process to recommend suitable candidates based on their knowledge of the athletes' training attitudes, skill levels, and overall engagement. Due to confirmed withdrawals for specific reasons, the final valid sample size from each club was adjusted to 19 participants. Random sampling was then applied to finalize the participant list, minimizing selection bias while maintaining the representativeness of the sample. This process resulted in a total of 95 valid participants, ensuring diversity, engagement, and proportionality in the sample while addressing real-world adjustments such as withdrawals.

Table 2 Participant Selection from Basketball Clubs

Club	Total Participants	Initially Selected Participants	Valid Sample Size
Guangxi Jinma Basketball Club	70	20	19
Guangxi Polaris Basketball Club	70	20	19
Guangxi Future Basketball Club	70	20	19
Guangxi Growth Basketball Club	70	20	19
Guangxi Zhanyi Basketball Club	70	20	19

Instrument

1. Questionnaire Modification

Based on a comprehensive review of Social Cognitive Theory (SCT) and literature on youth sports participation, an existing questionnaire was revised to better align with the specific context of youth basketball participation in this study. The revised questionnaire includes items measuring key constructs, such as self-efficacy, social support, situational factors, outcome expectations, and behavioral intention, ensuring that each item accurately reflects the theoretical framework. Each item was rated using a 5-point Likert scale, where 1 = "strongly disagree" and 5 = "strongly agree," to measure the intensity of participants' perceptions and attitudes. This scoring method ensures consistent data collection and facilitates statistical analysis.

2. Pilot Testing

The revised questionnaire was pilot-tested with a group of youth basketball participants (n = 30) to verify the clarity, readability, and suitability of the items. Feedback from the pilot test highlighted ambiguous or unclear items, which were then refined to enhance understanding for the target age group (12–14 years old). The pilot testing also confirmed the appropriateness of the 5-point Likert scale for this age group.

3. Reliability and Validity Testing

To ensure the scientific rigor of the questionnaire:

Reliability Testing: Cronbach's alpha was calculated for each construct to assess internal consistency, with an alpha value of ≥ 0.7 considered acceptable.

Construct Validity: Confirmatory Factor Analysis (CFA) was performed to validate the questionnaire's structure. The model fit indices, such as χ^2/df, CFI, TLI, RMSEA, were used to determine the adequacy of the construct validity.

Scoring Details: The questionnaire items were scored based on the Likert scale, and the average score of all items under each construct was computed to derive composite scores for self-efficacy, social support, situational factors, outcome expectations, and behavioral intention. These composite scores were used in subsequent analyses to explore relationships among variables.

Data Collection Procedure

1.Preparation and Planning:

Coordinated with five basketball clubs in Guangxi Province, including Guangxi Jinma Basketball Club, Guangxi Polaris Basketball Club, Guangxi Future Basketball Club, Guangxi Growth Basketball Club, and Guangxi Zhanyi Basketball Club. Each club provided U12 and U14 teams, aiming to recruit 100 participants.

To ensure transparency, I explained the study's purpose, procedures, and data confidentiality measures to coaches and parents of participants.

2.Questionnaire Distribution:

The questionnaire was made available in both electronic and paper formats to increase convenience and response rates.

The electronic questionnaire was accessible via a QR code that participants could scan on their mobile devices. For those who preferred a paper format, printed copies were distributed at the training sites.

Coaches and research assistants supervised the distribution process, ensuring that participants and their parents understood how to complete the questionnaire and encouraging completion under parental supervision.

3.Parental Consent and Participant Assent:

Before data collection, an informed consent form was sent to parents, explaining the study's objectives, data confidentiality, and voluntary participation.

Assent was also obtained from the adolescent participants, indicating their understanding and willingness to participate in the study.

Signed parental consent forms and participant assent forms were collected and securely stored.

4.Data Collection Supervision:

During data collection, research assistants or coaches were present to provide assistance, answer questions, and ensure the data collection process ran smoothly.

Participants were guided to complete the questionnaire independently to ensure the authenticity of responses.

5.Data Quality Check and Follow-up:

After collecting the questionnaires, I checked each for completeness and consistency, noting any incomplete or ambiguous responses.

When possible, follow-up contacts were made to clarify incomplete data, ensuring accuracy in the collected information.

6.Data Entry and Security:

Completed questionnaires (both electronic and paper) were securely stored and then entered into a digital database for analysis.

Data were anonymized to protect participant identities and stored in a secure location, accessible only to authorized personnel, to maintain participant privacy throughout the study.

Data Analysis

Cronbach's alpha, Kaiser-Meyer-Olkin，Bartlett's Test，Confirmatory Factor Analysis

Phase 2

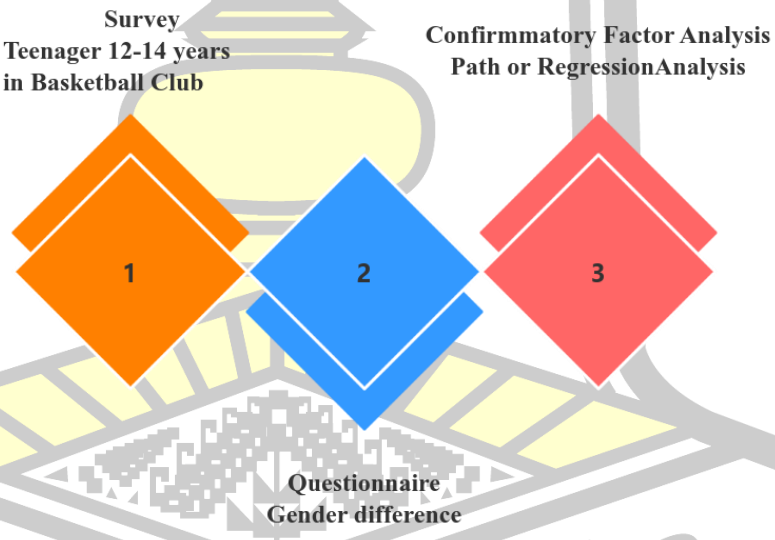

Figure 4 Procedure of Phase 2

Objective

To identify the influence factors on the behavior and intention of teenagers participating and different genders in basketball training.

Population and sample size

In structural equation modeling (SEM) analysis, the selection of sample size is crucial as it directly impacts the stability of model estimation and the credibility of analytical results. Theoretically, Jackson (2003) proposed the N:q rule, suggesting that the sample size should be 10 to 20 times the number of estimated parameters, providing significant guidance for SEM research. Bentler and Chou (1987) further recommended that the ratio of sample size to estimated parameters should be at least 5:1 to ensure the reliability of parameter estimation, with a ratio of 10:1 substantially enhancing the validity of significance testing. Additionally, Barrett (2007) emphasized that SEM studies with sample sizes below 200 may face challenges in gaining acceptance from reviewers or peers, underscoring the importance of adequate sample sizes. Combining these perspectives, the design of sample size in research is not only a fundamental requirement for statistical analysis but also a key factor in ensuring the scientific validity of theoretical verification and model construction.

Table 3 Questionnaire Distribution and Response Summary

Club Name	Questionnaires Distributed	Valid Responses Collected
Guangxi Jinma Basketball Club	70	66
Guangxi Polaris Basketball Club	70	67
Guangxi Future Basketball Club	70	68
Guangxi Growth Basketball Club	70	69
Guangxi Zhanyi Basketball Club	70	69

A total of 350 questionnaires were distributed to the U12 and U14 teams of five basketball clubs: Guangxi Jinma Basketball Club, Guangxi Polaris Basketball Club, Guangxi Future Basketball Club, Guangxi Growth Basketball Club, and Guangxi Zhanyi Basketball Club, with 70 questionnaires allocated to each club. After data collection and screening, 339 valid questionnaires were obtained, achieving a response rate of 96.86%. Specifically, 66, 67, and 68 valid questionnaires were collected from Guangxi Jinma, Polaris, and Future Basketball Clubs, respectively, while Guangxi Growth and Zhanyi Basketball Clubs each returned 69 valid

questionnaires. A small number of questionnaires were excluded due to incomplete or inconsistent responses. The high response rate and balanced sample distribution not only meet the sample size requirements for structural equation modeling (SEM) analysis but also ensure the representativeness and diversity of the data, providing a solid foundation for subsequent research.

This study ultimately collected 339 valid samples, exceeding the minimum sample size requirements for structural equation modeling (SEM) analysis. According to the recommendations of Bentler and Chou (1987), the ratio of sample size to estimated parameters should be at least 5:1. With 41 observed variables in this study, the minimum required sample size is 205. Additionally, the sample size surpasses the minimum standard of 200 proposed by Barrett (2007). The research design also ensures diversity and representativeness, with proportional sampling from the U12 and U14 teams of five basketball clubs, enhancing the scientific rigor and analytical efficacy of the data. Therefore, the 339 samples collected effectively support robust model analysis and theoretical derivation, providing strong reliability for the study's findings.

Instrument

The revised and validated questionnaire from the first phase was used for formal data collection in the second phase. This questionnaire covered key constructs related to Social Cognitive Theory (SCT), including self-efficacy, social support, situational factors, outcome expectations, and behavioral intention. These constructs are considered to have a significant impact on youth basketball participation behavior.This study validated the questionnaire's validity through Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA). The KMO value was 0.972, and Bartlett's test of sphericity was significant ($P < 0.01$), indicating the data were highly suitable for factor analysis. CFA results showed that most indices were within acceptable ranges, such as SRMR at 0.07; however, CFI (0.777) and RMSEA (0.129) fell slightly below the ideal thresholds, suggesting that the questionnaire has good structural validity but requires further refinement. Factor loading analysis indicated that the majority of measurement items effectively measured their latent variables,

making the questionnaire overall suitable for studying Social Cognitive Theory (SCT)-related factors influencing adolescents' basketball participation behavior.

Data Collection Procedure

The data collection procedure involved collaboration with five basketball clubs in Guangxi Province,Guangxi Jinma Basketball Club,Guangxi Polaris Basketball Club,Guangxi Future Basketball Club, Guangxi Growth Basketball Club, and Guangxi Zhanyi Basketball Club. A total of 350 questionnaires, covering constructs based on Social Cognitive Theory (SCT), were prepared in both paper and electronic formats to ensure accessibility. Participants and their guardians were informed about the study's objectives, and informed consent was obtained to adhere to ethical standards. The questionnaires were distributed by coaches during training sessions or competitions, with instructions provided to ensure clarity and independent completion by the participants. To maximize the response rate, the completion process was closely monitored, and incomplete responses were followed up where possible. After thorough verification, 339 valid questionnaires were collected, achieving a 97% response rate and providing a robust data foundation for subsequent analysis.

Data Analysis

Regression Analysis: Using regression analysis, each factor's strength and direction of association with basketball participation intention were evaluated. Based on the regression coefficients and significance levels (p-values), factors with a significant positive impact on participation intention were identified. Factors with high positive regression coefficients and significant p-values (e.g., $p < 0.05$) were marked as potential intervention indicators, providing a basis for designing intervention measures.

Key Indicator Identification: Based on the regression analysis results, the most influential factors on participation intention were identified. These factors may include self-efficacy, social support, or specific situational factors. Priority was given to factors that were statistically significant and practically meaningful within the context of youth basketball training.

Final Selection of Intervention Indicators: Based on the analysis results, intervention indicators were summarized and finalized. These indicators will serve as the foundation for designing interventions aimed at enhancing the behavioral intention of youth to participate in basketball training.

Phase 3

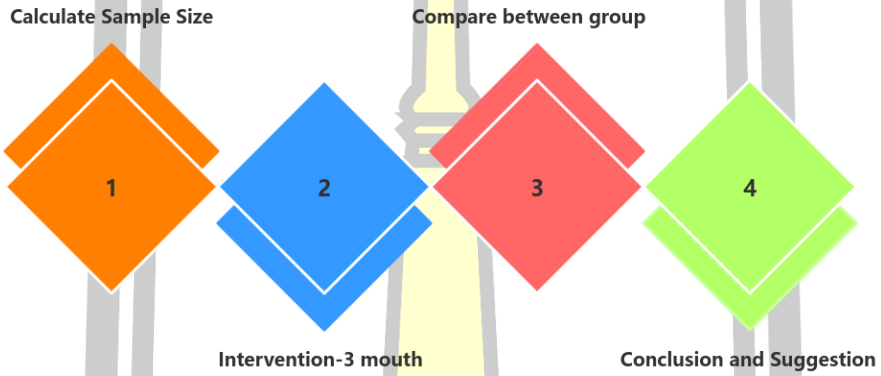

Figure 5 Procedure of Phase 3

Objective

To determine the effect of intervention on the behavior intention of teenagers of different genders.

Population and sample size

Participants will be divided into male and female groups to ensure a balanced distribution between genders. To achieve equal distribution, the number of participants in each group should be as close as possible. If the total number of participants is odd, the difference between groups should be minimal. Therefore, 17 or 18 players will be selected from each of the five basketball clubs. See Table 2 for detailed.

Inclusion Criteria

Age and Gender: Participants must be aged between 12 and 14 years and actively engaged in basketball training. Both male and female participants are included to ensure a balanced gender distribution.

Training Experience: Participants must demonstrate consistent engagement in their basketball club's training programs.

Exclusion Criteria

Medical or Physical Limitations: Participants with physical injuries, chronic illnesses, or other medical conditions that may hinder their full participation in basketball training or intervention activities will be excluded.

Irregular Training Attendance: Participants who have missed more than 30% of their training sessions in the past three months or demonstrate inconsistent attendance will be excluded to ensure data reliability.

Grouping Process:

In this study, participants will be divided into male and female groups based on their gender information, which will be collected through demographic data or relevant questions in the questionnaire. To ensure that the study subjects meet the requirements and objectives, coaches acting as researchers will be responsible for selecting athletes. The selection of these five clubs was based on their strong reputation and consistent track record of training success within Nanning's basketball community. The selected clubs are Guangxi Jinma Basketball Club, Guangxi Polaris Basketball Club, Guangxi Future Basketball Club, Guangxi Growth Basketball Club, and Guangxi Zhanyi Basketball Club. These clubs were chosen due to their active involvement in youth basketball development and their ability to provide participants from a range of training environments and social backgrounds.

Coaches will follow strict principles of fairness and consistency when selecting participants to ensure that they meet specific research criteria, such as continuous participation in training programs, sufficient competition experience, and reliable attendance records. The rationale for choosing participants from each club is to maintain uniform training conditions and resources across all groups, ensuring consistency in the intervention and reducing potential variability in the data. This

approach ensures that the training environment and procedures are standardized, enhancing the validity of the findings.

All selected participants will be informed of their group assignments and roles in the study before the experiment begins. The coaches will ensure that participants and at least one of their parents sign informed consent forms, confirming that participants fully understand the study's purpose, procedures, potential risks, and benefits. Additionally, the coaches will sign a commitment letter to guarantee adherence to the study's protocols and to uphold the scientific integrity of the research while protecting the rights of participants.

This distribution method ensures a balanced gender ratio among participants from different clubs. Specifically, the gender distribution for each club is as follows: Guangxi Jinma Basketball Club has 17 male and 17 female participants; Guangxi Polaris Basketball Club has 17 male and 18 female participants; Guangxi Future Basketball Club has 18 male and 18 female participants; Guangxi Growth Basketball Club has 18 male and 18 female participants; and Guangxi Zhanyi Basketball Club has 18 male and 18 female participants. Table 2 indicates a total of 87 male and 88 female participants. This balanced distribution helps maintain the scientific rigor and fairness of the experiment, ensuring that the results are representative and reliable.

Table 4 Sample size of this study from five clubs at Nanning's basketball community

Basketball Club	Male	Famale
Guangxi Jinma Basketball Club	17	17
Guangxi Polaris Basketball Club	17	18
Guangxi Future Basketball Club	18	18
Guangxi GrowthBasketball Club	18	18
Guangxi Zhanyi Basketball Club	18	18
Total	87	88

Instrument

The intervention plan consists of various training activities based on the key factors identified in the preliminary research as influencing behavior intention (e.g., self-efficacy, social support, and outcome expectations). These activities will be

designed in a structured and step-by-step manner to help participants gradually achieve behavior change.

Training manuals and guidance: To ensure consistency and standardization, the intervention plan will include detailed training manuals containing implementation details, schedules, and specific instructions. Coaches and researchers will undergo training to ensure that the intervention is carried out according to the established plan.

Participant Logs and Feedback: Participants will use a designated logbook provided to them to record their training experiences and feedback after each intervention session. These logbooks will serve as official record-keeping tools to accurately track participant engagement and progress, providing reliable data for researchers' analysis.

Measurement questionnaires: At the beginning and end of the intervention, questionnaires consistent with the preliminary study will be used to assess changes in participants' behavior intentions, measuring the effectiveness of the intervention.

Creating intervention programs

Intervention Strategies for Male and Female Participants

According to the regression analysis, the following variables are significant predictors across the four behavioral intention (Q38-Q41) and are key areas that need intervention for male participants in basketball training:

Table 5 Male Participants Intervention Suggestion

Item	Intervention Suggestion:
Social Support (Q3 - Parents Watching Games):	Strengthen family support, particularly by encouraging parents to participate more frequently and support their children's basketball activities. This can be achieved through family days, parent-child basketball games, etc., to enhance this support, thereby increasing boys' motivation and effectiveness in training. Family Day Activities: Time: 3rd week of the 1st and 2nd months,

	Wednesday evening, 6:00-9:00 PM Activities: Parent-child basketball games, family interaction with the coach, and additional activities for parents to observe and interact during the training session.
Situation (Q16 - Affection for the Coach):	Improve the coach's teaching level and interaction quality with students. Provide training and communication skills courses for coaches to ensure they can stimulate students' interest and enthusiasm during training, thereby improving students' self-efficacy and enjoyment of training. Time: 2nd week of the 1st and 2nd months, Friday evening, 6:00-9:00 PM Content: Provide training and communication skills courses for coaches to ensure they can stimulate students' interest and enthusiasm during training, thereby improving students' self-efficacy and enjoyment of training.
Self-Efficacy (Q25 - Confidence in Dealing with Difficulties in Training):	Provide psychological counseling and confidence-building courses to help students better cope with challenges in training. This can be achieved through setting role models, encouraging positive feedback, and providing psychological support to enhance students' self-efficacy. Time: After training every Tuesday, throughout the 12-week training period Content: Role Model Selection: The coach will select students who excel in training, actively participate, and demonstrate leadership as role models. These role models will share their experiences and coping

	strategies during the course to inspire other students. Positive Feedback: The coach will regularly provide personalized feedback, praising students for their progress and effort in training. Feedback can take the form of verbal praise, special mentions during team debriefing sessions after training, etc. Support Methods: The coach will provide psychological support through group discussions and counseling sessions, helping students build confidence and effectively cope with the pressures and challenges of training.
Outcome Expectations (Q36 - Negative Impact of Training on Academics):	Design a reasonable training schedule to avoid conflicts between academics and training. Provide time management and study skills training to help students balance academics and sports activities, thereby alleviating their concerns. Time: 1st week of each month, Thursday evening, 6:00-7:30 PM, throughout the 12-week training period Content: Coordinated by the coach and the homeroom teacher, provide time management and study skills training to help students balance academics and sports activities, thereby alleviating their concerns.

Table 6 Female Participants Intervention Suggestion

Item	Intervention Suggestion:
Situation (Q16 - Affection for the Coach):	Similar to male participants, enhance the quality of interaction and teaching effectiveness of coaches to ensure students feel supported and motivated during training, thereby enhancing their athletic ability and willingness to participate. Time: 2nd week of the 1st and 2nd months, Friday evening, 6:00-9:00 PM Content: Managed by the coach, providing training and communication skills courses.
Self-Efficacy (Q25 - Confidence in Dealing with Difficulties in Training):	Provide confidence-building courses specifically for females to help them better cope with challenges in training. This can be achieved by establishing a supportive group environment, offering positive peer feedback, and enhancing their self-efficacy. Time: After training every Tuesday, throughout the 12-week training period Content: Managed by the coach, implemented through group discussions and counseling sessions.
Outcome Expectations （ Q30-Expectation of Family Rewards):	Establish a structured reward system in collaboration with families to enhance the motivation of female participants. This system can include: Reward Program: Developed jointly by the coach and parent representatives, rewarding students for consistent effort and improvement in training. Rewards may include verbal praise, certificates, or tangible incentives. Parental Involvement: The coach and parent representatives will meet regularly to discuss the students' performance and progress in training,

ensuring that parents are informed and can recognize their children's efforts. This information can also be communicated through parent meetings or monthly family day activities.

Feedback Mechanism: Establish a feedback mechanism to facilitate open communication between parents and the coach regarding student progress and rewards, ensuring effective family support for the reward system.

Time: 1st week of each month, Thursday evening, 6:00-7:30 PM

Content:Organized by the coach in coordination with parent representatives to ensure the effective implementation of the reward system and family communication.

From the above analysis, it is evident that designing targeted interventions based on the different needs of male and female adolescents in key dimensions such as social support, situation, self-efficacy, and outcome expectations is crucial. These interventions can better support adolescents in their basketball training, enhancing their willingness to participate, training effectiveness, and overall experience. This will help them find a better balance between sports and academics and achieve a greater sense of accomplishment.

12-Week The Outline and Some Details of the Basketball Training Program

Based on these regression analysis results, design a more targeted 12-week basketball training intervention plan. Here is the detailed intervention plan:

Overall Goals

1.Enhance the basketball skill levels of teenagers through structured training sessions.

2.Boost teenagers' enthusiasm for participation and strengthen their behavioral

intentions to engage in basketball activities.

3.Foster improvements in key psychological factors such as social support, self-efficacy, and positive outcome expectations among teenagers.

Plan Overview

The training program will be conducted 5 days a week (Monday to Friday), focusing on skill development and psychological growth. On Saturdays, there will be comprehensive training sessions paired with simulation games to reinforce skills and teamwork. Sundays will be reserved for rest and recovery to ensure physical and mental rejuvenation. Phase-specific goals will be set at the beginning of each month, with detailed summaries and evaluations conducted at the end of each phase (every 4 weeks).

Weekly Plan Overview

Monday to Friday: Focus on training basic basketball skills (e.g., dribbling, passing, shooting) and promoting team interaction to develop social support, self-efficacy, and positive outcome expectations. Coaches will record training outcomes and participant performance after each session and analyze the implementation of the plan.

Saturday: Conduct comprehensive training, including high-intensity practice sessions and simulation games to provide practical experience and enhance team cohesion. Coaches will document participants' performance and teamwork during simulation games and evaluate the specific effectiveness of the intervention.

Sunday: Dedicated to rest and recovery, allowing participants to recuperate and prepare for upcoming training. Coaches will record participants' recovery status and feedback to adjust subsequent training content.

Detailed Training Content

At the end of each phase, coaches will summarize and document the entire implementation process, including the reasons for the intervention, participant performance feedback, and any necessary plan adjustments.

12-Week Basketball Training Intervention Program

First stage of intervention

Table 7 Detailed Training Content and Goals

Weeks 1-4: Basic Skills and Team Cooperation	
Male Participants:	
Basic Skills:	1 hour of dribbling, passing, and shooting training daily.
Goals:	1.Improve basic basketball skills. 2.Enhance self-efficacy (confidence and adaptability). 3.Promote positive expectations for basketball training outcomes.
Team Cooperation:	15 minutes of team games (e.g., team competitions, peer evaluations) daily to enhance interaction and cooperation among players.
Goals:	1.Strengthen team cohesion and cooperation. 2.Increase social support (encouragement and participation from friends). 3.Improve adaptability to the training environment.
Female Participants:	
Basic Skills:	1 hour of dribbling, passing, and shooting training daily.
Goals:	1.Increase confidence. 2.Improve adaptability to the training environment. 3.Promote positive expectations for basketball training outcomes.
Self-Efficacy:	Set personal goals and record progress after completing training tasks daily to improve self-efficacy.
Goals:	1.Increase confidence. 2.Improve training enthusiasm. 3.Promote positive expectations for basketball training outcomes.
Positive Feedback:	Coaches provide positive feedback to help players build confidence..
Goals:	1.Increase social support (encouragement from parents and coaches). 2.Enhance self-efficacy (confidence and adaptability).

3.Promote positive expectations for training outcomes.

Coach's Recorded Feedback for Weeks 1-4

1.Training Effectiveness: Overall, athletes demonstrated significant improvement in basic basketball skills. Most participants showed noticeable progress in dribbling, passing, and shooting, particularly those who maintained consistent engagement in training sessions.

2.Team Cooperation and Social Interaction: Team games fostered interaction and cooperation among players, with participants showing stronger team cohesion and collaboration, especially during team competitions and peer assessments. A few athletes were initially passive but improved their participation with encouragement from peers.

3.Psychological Feedback: Through goal setting and receiving positive feedback, most athletes experienced a significant boost in confidence. Coaches observed increased enthusiasm toward basketball training and higher satisfaction upon completing tasks. Changes in self-efficacy were particularly notable among participants who consistently achieved their goals.

4.Phase Summary and Intervention Adjustments: According to the records, the training intensity and difficulty were appropriate for most athletes. However, adjustments in skill difficulty and training duration might be needed for a few participants in the coming weeks. The next phase will emphasize situational simulations and personalized skill enhancement to consolidate the progress made and advance toward subsequent goals.

Table 8 Second stage of intervention program

Weeks 5-8: Situational Simulation and Personal Skill Enhancement	
Male Participants:	
Situational Simulation:	1.5 hours of simulation game training to improve practical skills.
Goals:	1.Improve responsiveness and skill levels in actual games. 2.Enhance confidence and adaptability. 3.Improve adaptability to the training environment.
Positive Feedback:	Coaches provide positive feedback after training to help players build confidence and adaptability.
Goals:	1.Enhance self-efficacy (confidence and adaptability). 2.Improve training enthusiasm. 3.Promote positive expectations for training outcomes.
Female Participants:	
Personal Skills:	1 hour of specific skill enhancement training daily to strengthen personal abilities.
Goals:	1.Improve specific basketball skills. 2.Enhance self-efficacy (confidence and adaptability). 3.Promote positive expectations for training outcomes.
Success Story Sharing:	
Time:	Every Friday after training, lasting 30 minutes.
Participants	One successful female basketball player each time.selected by the coach, shares her experiences and success stories and answers players' questions.
Goals:	1.Increase confidence and motivation. 2.Promote positive expectations for training outcomes. 3.Enhance social support (encouragement from coaches and teammates).
Achievement Display:	Monthly achievement display activities to showcase training results.

Goals: 1.Increase sense of achievement and future expectations.
2.Enhance self-efficacy (confidence and adaptability).
3.Promote positive expectations for basketball training outcomes.

Coach's Recorded Feedback for Weeks 5-8

1.Training Outcomes: During the situational simulation and personal skill enhancement phase, athletes demonstrated significant improvements in their practical skills and responsiveness in game-like scenarios. Most male participants showed notable progress in their ability to adapt under pressure, with many enhancing their strategic play and teamwork during high-intensity sessions. For female participants, individual skill training sessions contributed to their technical precision and adaptability, with confidence levels increasing steadily across the group.

2.Team Dynamics and Social Interaction: The comprehensive training sessions fostered greater team cohesion among male participants, reflected in improved communication and coordinated play during simulation games. Female participants benefited from success story sessions, which fostered a supportive environment and motivated players by showcasing relatable achievements. Peer support was visibly strengthened, with increased encouragement among teammates and positive reinforcement from coaches.

3.Psychological Feedback: Male and female athletes exhibited enhanced self-efficacy through consistent positive feedback and practical success. The psychological counseling and confidence-building activities bolstered participants' resilience, making them more proactive during training. Players reported feeling more confident in their capabilities, leading to greater engagement and enthusiasm for training.

4.Phase Summary and Intervention Adjustments: Coaches noted that the training plan for weeks 5-8 met most of the objectives, particularly in skill development and psychological readiness. However, some participants indicated that they could benefit from more targeted feedback during personal skill enhancement. Moving forward, the next phase (weeks 9-12) will introduce more complex team scenarios and focused technical drills to build on the established skills and continue fostering self-efficacy and team unity.

Table 9 Third stage of intervention program

Weeks 9-12: Comprehensive Training and Game Preparation	
Male Participants:	
Comprehensive Training:	1.5 hours of comprehensive skills training daily, including physical training and specific skill enhancement.
Goals:	1.Improve overall basketball skills 2.Enhance self-efficacy (confidence and adaptability). 3.Promote positive expectations for training outcomes.
Simulation Games:	Weekly simulation games on Saturdays to enhance practical experience and team cooperation.
Format:	Full-court games.
Goals:	1.Improve responsiveness and skill levels in actual games. 2.Strengthen team cohesion and cooperation. 3.Increase social support (encouragement and participation from friends).
Female Participants:	
Comprehensive Training:	1.5 hours of comprehensive skills training daily, including physical training and specific skill enhancement.
Goals:	1.Improve overall basketball skills. 2.Enhance self-efficacy (confidence and adaptability). 3.Promote positive expectations for training outcomes.
Simulation Games:	Weekly simulation games on Saturdays to enhance practical experience and team

	cooperation.
Format:	Full-court games.
Goals:	1.Improve responsiveness and skill levels in actual games. 2.Strengthen team cohesion and cooperation. 3.Increase social support (encouragement and participation from friends).
Achievement Display:	Continue monthly achievement display activities to enhance players' sense of achievement and future expectations.
Goals:	1.Increase sense of achievement and future expectations. 2.Enhance self-efficacy (confidence and adaptability). 3.Promote positive expectations for basketball training outcomes.

Coach's Recorded Feedback for Weeks 9-12

At the end of the intervention during Weeks 9-12, coaches will record the following observations and provide feedback:

Comprehensive Skills and Overall Performance: Overall, athletes demonstrated significant improvements in comprehensive skills training. Participants showed higher skill levels in both physical conditioning and specific skill enhancement. Both male and female athletes exhibited faster response times and better application of tactical skills during simulation games.

Game Performance and Team Cooperation: During simulation games, coaches observed marked improvement in athletes' real-game performance, especially in full-court play where teamwork and tactical execution showed notable progress. Most participants displayed enhanced cooperation skills, with smoother communication and interactions among teammates.

Psychological Feedback and Confidence Boost: Through the series of training sessions and positive reinforcement, participants' confidence levels were notably

elevated. Athletes who achieved success in simulation games demonstrated greater self-efficacy and a more positive training attitude. There was a noticeable increase in optimism regarding training outcomes and active participation.

Sense of Achievement and Future Outlook: Monthly achievement display activities further enhanced participants' sense of accomplishment and expectations for future training. Athletes expressed pride in their progress throughout the training period, and positive feedback indicated that this sense of achievement effectively fostered self-efficacy and expectations for future success.

Intervention Summary and Adjustment Recommendations: Based on observations and records from this phase, coaches found that the current training content and intensity effectively supported the achievement of goals. Future recommendations include maintaining the existing training structure while introducing more varied scenarios to improve athletes' adaptability in diverse game environments.

Factor Interventions

Table 10 Factor Interventions for male

Week	Intervention Item	Time	Content
Weeks 1-4	Social Support (Q3)	Family Day Activities	3rd week of the 1st and 2nd months, Wednesday evening, 6:00-9:00 PM	Parent-child basketball games, family interaction with the coach, and activities for parents to observe and interact.
Weeks 1-4	Situation (Q16)	Coach Training	2nd week of the 1st and 2nd months, Friday evening, 6:00-9:00 PM	Provide training and communication skills courses for coaches.
Weeks 1-12	Self-Efficacy (Q25)	Psychological Counseling	After training every Tuesday	Role Model Selection, Positive Feedback, Support Methods.

Weeks 1-12	Outcome Expectations (Q36)	Time Management Training	1st week of each month, Thursday evening, 6:00-7:30 PM	Provide time management and study skills training.

Weeks 1-4: Social Support (Q3) - Family Day Activities

Time: 3rd week of the 1st and 2nd months, Wednesday evening, 6:00-9:00 PM

Details:

Parent-Child Basketball Games: Organize basketball games that involve both parents and children, aiming to enhance the parent-child relationship through shared physical activity. These games emphasize participation rather than competition, encouraging families to actively support their children's involvement in sports.

Family-Coach Interaction: Arrange sessions where parents can interact directly with coaches, discussing their child's progress, the importance of social support in sports, and how to help maintain a positive attitude toward basketball. Coaches will also share insights into training methods and goals.

Observation and Interaction Activities: Encourage parents to observe training sessions and participate in light interactive activities, helping them understand what their children are learning. This might include mini-lectures or interactive demonstrations led by coaches, aimed at teaching parents how to support their children's sports journey at home.

Weeks 1-4: Situation (Q16) - Coach Training

Time: 2nd week of the 1st and 2nd months, Friday evening, 6:00-9:00 PM

Details:

Coach Training Sessions: Provide specialized training for coaches, focusing on creating a positive and supportive environment for young athletes. The training includes strategies for effective communication, conflict resolution, and motivation techniques.

Communication Skills Courses: Help coaches develop skills for effective communication with athletes and their families, focusing on understanding the

psychological and emotional needs of adolescent athletes, ensuring that coaches can provide the necessary support to help them succeed both on and off the field.

Practical Workshops: Coaches engage in role-playing and scenario-based exercises to practice and refine their communication and coaching skills through hands-on practical methods.

Weeks 1-12: Self-Efficacy (Q25) - Psychological Counseling

Time: After training every Tuesday

Details:

Role Model Selection: Introduce young athletes to role models who have overcome challenges and achieved success in sports. These role models can share their stories, providing inspiration and demonstrating that perseverance and confidence can lead to success.

Positive Feedback: Coaches regularly provide personalized positive feedback to each athlete, reinforcing their confidence in their abilities, encouraging them to set realistic goals, and helping them build a positive self-image.

Support Methods: Coaches teach athletes strategies for coping with setbacks, stress, and anxiety, including relaxation techniques, visualization exercises, and other psychological tools designed to enhance mental resilience and self-efficacy.

Weeks 1-12: Outcome Expectations (Q36) - Time Management Training

Time: 1st week of each month, Thursday evening, 6:00-7:30 PM

Details:

Time Management Workshops: Provide practical training sessions to help athletes learn how to manage their time effectively, including setting priorities, creating schedules, and balancing the responsibilities of training and academics.

Study Skills Training: Offer guidance on effective study techniques to help athletes excel academically while maintaining their training schedules. This may include note-taking techniques, effective reading strategies, and memory aids.

Interactive Activities: Through real-life scenario simulations, athletes make decisions on how to allocate time between sports, studies, and leisure. This hands-on

approach helps them understand the importance of time management in achieving their goals.

Table 11 Factor Interventions for female

Week	Intervention Item	Activity	Time	Content
Weeks 1-4	Situation (Q16)	Coach Training	2nd week of the 1st and 2nd months, Friday evening, 6:00-9:00 PM	Provide training and communication skills courses for coaches.
Weeks 1-12	Self-Efficacy (Q25)	Confidence-Building Courses	After training every Tuesday	Group discussions, counseling sessions.
Weeks 5-8	Outcome Expectations (Q30)	Reward System	1st week of each month, Thursday evening, 6:00-7:30 PM	Implement a reward program with parental involvement.

Weeks 1-4: Situation (Q16) - Coach Training

Time: 2nd week of the 1st and 2nd months, Friday evening, 6:00-9:00 PM

Details:

Coach Training Sessions: Conduct specialized training for coaches to focus on creating a positive and supportive environment tailored to female athletes. This includes understanding the unique challenges faced by female athletes, such as societal expectations and gender norms.

Communication Skills Courses: Equip coaches with effective communication techniques to better support and motivate female athletes. These courses emphasize empathetic listening, providing constructive feedback, and fostering an environment where athletes feel valued and understood.

Interactive Workshops: Coaches participate in role-playing scenarios and case studies that reflect common challenges faced by female athletes, such as balancing sports with academic pressures. These workshops help coaches practice and refine their skills in real-life situations.

Weeks 1-12: Self-Efficacy (Q25) - Confidence-Building Courses

Time: After training every Tuesday

Details:

Group Discussions: Organize weekly group discussions where female athletes can share their experiences, challenges, and successes. These discussions aim to build a supportive community where athletes can learn from one another and boost each other's confidence.

Counseling Sessions: Provide regular counseling sessions focusing on self-efficacy, where athletes can work on building their confidence and overcoming any self-doubt. These sessions are led by coaches or psychological counselors who are trained to address the specific needs of female athletes.

Visualization Techniques: Introduce visualization and mental rehearsal techniques to help athletes imagine success in their sports endeavors, thereby increasing their confidence and readiness for competition.

Weeks 5-8: Outcome Expectations (Q30) - Reward System

Time: 1st week of each month, Thursday evening, 6:00-7:30 PM

Details:

Reward Program Implementation: Develop a reward system that recognizes both effort and achievement in training and competition. This could include certificates, medals, or other tangible rewards that athletes can earn by reaching specific milestones.

Parental Involvement: Encourage parents to participate in the reward system by recognizing their children's achievements at home and during family events. This involvement helps reinforce the athletes' commitment and encourages continued participation in sports.

Motivational Talks: Invite successful female athletes or coaches to speak with the team about the importance of setting goals and working toward them. These talks can help athletes understand the long-term benefits of persistence and hard work, which the reward system is designed to promote.

Table 12 IOC Rating Results for Expert Intervention Experiment Content

Order	Evaluation items	Project Description	Expert1	Expert2	Expert3	Expert4	Expert5	Scores	Expert rating
1	Training environment	Basketball clubs in Nanning, Guangxi have indoor courts	1	1	1	1	1	5	
2	Training duration	12 weeks	1	1	1	1	1	5	
3	Training frequency	Six days a week	1	1	1	1	1	5	
4	Training duration	90 minutes/each time	1	1	1	1	1	5	
5	Intervention plan	Targeted intervention training for male and female	1	1	1	1	1	5	

Date collection procedure

The data collection procedure involved several key steps. During the preparation phase, the research team coordinated with five basketball clubs (Guangxi Jinma, Polaris, Future, Growth, and Zhanyi) to secure support and ensure that participants and their guardians signed informed consent forms. The purpose, procedures, and confidentiality of the study were explained. Baseline data on behavioral intentions, self-efficacy, social support, situational factors, and outcome expectations were collected using a revised questionnaire distributed in both electronic and paper formats. Participants completed the questionnaires on-site or at home with their guardians' assistance. Collected questionnaires were reviewed for completeness, and follow-ups were conducted to address inconsistencies. The data were then securely entered into an encrypted database, organized into baseline and post-intervention datasets.

The intervention, guided by Social Cognitive Theory, aimed to enhance behavioral intentions and explore gender differences. It included pre- and post-intervention assessments using the same questionnaire for consistency. Weekly training sessions focused on skill development (e.g., shooting, passing), teamwork, and scenario simulations to build self-efficacy and social support. Personalized adjustments were made to address gender differences, such as competitive activities for males and collaborative tasks for females. Participants logged feedback after each session to track their experiences and progress. The intervention's effectiveness was evaluated by comparing pre- and post-intervention data. Standardized tools, including training manuals, feedback logs, and questionnaires covering key constructs like self-

efficacy, social support, and behavioral intentions, ensured a structured and reliable process.

Date Analysis

In this study, the application of regression analysis is crucial for understanding the relationships between four independent variables (situation, self-efficacy, social support, and outcome expectations) and the behavioral intention of adolescents participating in basketball training. Regression analysis enables researchers to quantify the impact of these independent variables on the dependent variable (behavioral intention), thereby identifying key influential factors and their interactions.

Comparison Between Groups Using t-Test and p-Value

To explore differences in behavioral intention between groups (e.g., male and female), an independent samples t-test is used to compare the mean differences between the two groups. The specific steps include:

Data Preparation: Group the data by gender to ensure completeness for each group.

t-Test Application: Conduct an independent samples t-test to evaluate the mean differences in behavioral intention between the two groups.

p-Value Interpretation: Observe the p-value to determine the significance level of the differences. If the p-value is less than 0.05, it indicates a statistically significant difference between the two groups.

Through the t-test and p-value comparison, gender differences in basketball behavioral intention can be further verified, providing critical data support for designing more targeted interventions.

CHAPTER IV

RESEARCH RESULTS

This research design aims to comprehensively understand the social cognitive factors influencing adolescents' behavioral intention to participate in basketball training and to evaluate the effectiveness of specific interventions. Through systematic questionnaire development, empirical analysis, and intervention evaluation, this study seeks to provide valuable insights and practical recommendations for youth sports education.

Phase I:

To reverse the questionnaire and investigate for social support, situation,self-efficacy,outcome expectations, and behavior intention teenager participant in basketball.

Phase II

To identify the influence factors on the behavior intention of teenagers participating and different gender in basketball training.

Phase III

To determine the effect of intervention on behavior intention of teenager and different gender.

Phase I

This study revised and evaluated a questionnaire aimed at exploring social cognitive factors such as self-efficacy, social support, Situation, outcome expectations, and behavioral intention. Using a literature review method, combined with expert review and pre-testing with a small sample, we optimized the questionnaire content. Finally, 100 pre-survey questionnaires were distributed to U12-U14 teams from five basketball clubs in Guangxi, and the reliability and validity of the questionnaire were assessed using statistical methods.

Based on Zhang's (2022) "Survey on the Factors Influencing Behavioral Intention of Adolescents Participating in Baseball Training in Shanghai," this study adapted the questionnaire to address the specific characteristics of basketball training and the goals of this research, creating a tailored questionnaire on factors influencing adolescents' intention to participate in basketball. The revised questionnaire retains the original framework while optimizing it for basketball-specific needs, divided into five sections. Questions Q1-Q8 focus on social support, exploring factors affecting social support in basketball training; Q9-Q18 focus on Situation, analyzing how training environments impact adolescents' basketball participation; Q19-Q29 address self-efficacy, examining factors influencing self-efficacy in basketball training; Q30-Q37center on outcome expectations, exploring how anticipated results affect behavioral intentions within basketball contexts; and Q38-Q41 focus on behavioral intention, identifying key factors that influence adolescents' continued participation in basketball training.

1. Item Objective Congruence (IOC)

Table 13 The IOC results of the questionnaire of evaluation

Item	Result	Proposed revisions
Q37	0.6	**Improvement Suggestions:** Participating in basketball training could significantly reduce the amount of my free time
Q1、Q2、Q3、Q4、Q5、Q6、Q7、Q8、Q9 、 Q10 、 Q11 、Q12 、 Q13 、 Q14 、Q15 、 Q32 、 Q33 、Q34 、 Q35 、 Q36 、Q38、Q40、Q41	0.8	**Summary of Improvement Suggestions** 1.Increase Specific Frequency and Time: Change vague time expressions to specific frequencies, e.g., from "often" to "twice a week." 2.Add Specific Details: Provide more detailed information to avoid generalities. For example, instead of just saying "motivated," say "consistently motivated and encouraged." 3.Clarify Subject and Action: Ensure each sentence has a clear subject and action to reduce ambiguity. 4.Describe Emotions and Results: Not only describe the behavior but also the emotions or results it brings, such as "feeling happy" and "gaining a sense of accomplishment." 5.Clearly Express Personal Feelings and Experiences: Change general descriptions to express personal feelings and experiences, e.g., "I feel" or "I experienced." Using these improvement strategies can make each question in the questionnaire clearer and more specific, making it easier for respondents to understand and answer accurately, thereby enhancing the validity and reliability of the questionnaire.
Q16 、 Q17 、 Q18 、Q19 、 Q20 、 Q21 、Q22 、 Q23 、 Q24 、Q25 、 Q26 、 Q27 、Q28 、 Q29 、 Q30 、Q31、Q39	1.0	

Although the expert scores are all higher than 0.6, I have improved the accuracy of the statements based on the experts' revision suggestions. The latest questionnaire is as follows (Table 13).

Table 14 IOC results of Questionnaire final from the Influencing factors of behavioral intention of youth basketball participation

IOC results from the first round of Influencing factors of behavioral intention of youth basketball participation									
No.	Questions	Exp1	Exp2	Exp3	Exp4	Exp5	Total	Result	
Dimension	Social Support								
Q1	My parents often joined me in playing	0	1	1	1	1	4	0.8	Pass
Q2	My parents took me to basketball training places or contacted	1	1	1	0	1	4	0.8	Pass
Q3	My parents watched me play	0	1	1	1	1	4	0.8	Pass
Q4	My parents frequently attended my basketball games to watch me play.	1	1	1	1	0	4	0.8	Pass
Q5	I encourage my friends to participate	1	1	1	1	0	4	0.8	Pass
Q6	My friends encouraged me to	0	1	1	1	1	4	0.8	Pass
Q7	My friends participated in basketball	1	1	0	1	1	4	0.8	Pass
Q8	My friends tell me that I am good at basketball.	1	1	0	1	1	4	0.8	Pass
Dimension	Situation								
Q9	The training place's facilities meet my basketball training needs.	0	1	1	1	1	4	0.8	Pass
Q10	I can conveniently use the training place's facilities for basketball	1	1	0	1	1	4	0.8	Pass
Q11	The format and content of the training courses are very attractive to me.	1	1	1	1	0	4	0.8	Pass
Q12	The training courses have had a positive effect on developing my	1	1	1	0	1	4	0.8	Pass
Q13	The training location frequently organizes participation in various	1	1	1	0	1	4	0.8	Pass
Q14	My coaches work seriously and	1	1	0	1	1	4	0.8	Pass
Q15	My coaches have professional basketball skills and teaching levels.	1	1	0	1	1	4	0.8	Pass
Q16	I like my coaches very much.	1	1	1	1	1	5	1.0	Pass
Q17	Most of my teammates like to	1	1	1	1	1	5	1.0	Pass
Q18	The basketball atmosphere in the	1	1	1	1	1	5	1.0	Pass
Dimension	Self-Efficacy								
Q19	I can ask my parents or coaches to take me to basketball training and	1	1	1	1	1	5	1.0	Pass
Q20	I can ask my best friend to	1	1	1	1	1	5	1.0	Pass
Q21	I can ask my parents to participate in	1	1	1	1	1	5	1.0	Pass
Q22	I think I have the level required for	1	1	1	1	1	5	1.0	Pass
Q23	Even if studying makes me tired, I will still participate in basketball	1	1	1	1	1	5	1.0	Pass
Q24	No matter the weather, I will still participate in basketball training.	1	1	1	1	1	5	1.0	Pass
Q25	I am confident in solving any difficulties that arise in basketball	1	1	1	1	1	5	1.0	Pass
Q26	I want to participate in basketball training even if I have to stay at	1	1	1	1	1	5	1.0	Pass
Q27	I want to participate in basketball training even if I have homework to	1	1	1	1	1	5	1.0	Pass
Q28	I really want to participate in basketball training when I have	1	1	1	1	1	5	1.0	Pass
Q29	I will participate in basketball training even if my friends want to do	1	1	1	1	1	5	1.0	Pass
Dimension	Outcome Expectations								
Q30	Hard work in basketball training will be rewarded by my parents.	1	1	1	1	1	5	1.0	Pass
Q31	Participating in basketball training will earn better evaluations from my	1	1	1	1	1	5	1.0	Pass
Q32	Participating in basketball training will improve my athletic ability.	1	1	0	1	1	4	0.8	Pass
Q33	I will get more fun from participating	1	1	1	0	1	4	0.8	Pass
Q34	Participating in basketball training will promote friendship with my	1	1	0	1	1	4	0.8	Pass
Q35	I may get injured during basketball	1	1	1	1	0	4	0.8	Pass
Q36	Participating in basketball training may affect my academic performance.	0	1	1	1	1	4	0.8	Pass
Q37	Participating in basketball training could significantly reduce the amount	0	0	1	1	1	3	0.6	Pass
Dimension	Behavioral Intention								
Q38	I will continue to participate in	1	0	1	1	1	4	0.8	Pass
Q39	I hope to further participate in other	1	1	1	1	1	5	1.0	Pass
Q40	I will recommend basketball training	1	1	1	0	1	4	0.8	Pass
Q41	I will not complain to my friends about unhappy things in basketball	1	1	1	0	1	4	0.8	Pass
								0.878	Pass

The IOC values, calculated based on the total congruence scores, are shown alongside each question, with a minimum threshold of 0.6 required for passing. The results indicate that all questions across dimensions met or exceeded this threshold, validating their relevance and alignment with the study's objectives. The average IOC score across the questionnaire is 0.878, confirming the instrument's robustness in measuring behavioral intention and influencing factors in youth basketball participation.

2. Confirmatory Factor Analysis (CFA)

The revised questionnaire, titled "The Influencing Factors of Behavioral Intention of Youth Basketball Participation," has been reviewed by sports experts and teachers for its content and textual expression, and then pre-tested among athletes from five clubs. The construct validity of the questionnaire was assessed through confirmatory factor analysis (CFA). Construct validity refers to the extent to which a questionnaire accurately measures the theoretical construction it is intended to measure or the degree to which it assesses psychological traits. CFA is a robust statistical technique used to confirm the factor structure identified by exploratory factor analysis (EFA) and to test the hypothesized relationships among latent variables and observed data (Schumacker & Lomax, 2016). This analysis helps verify whether the proposed model fits the data well, ensuring that the construct is accurately represented.

Table 15 Descriptive statistics of demographic characteristics of CFA

Variables	Numbers	Percentage (%)	Mean（SD）
Gender			
Male	46	48.42%	
Female	49	51.58%	
Total	95		
Age（year old）			
12	10	10.53%	
13	81	85.26%	12.94±0.38
14	14	4.21%	
Experience in basketball training			
1 year and below	41	43.16%	
1-2 years	27	28.42%	
2-3 years	13	13.68%	
3-4 years	3	3.16%	
4-5 years	4	4.21%	
More than 5 years	7	7.37%	
Frequency of' basketball training time			
4 hours and below	64	67.37%	
4-8 hours	20	21.05	
8-12 hours	3	3.16%	
More than 12 hours	8	8.42%	

The original sample consisted of 100 participants; however, due to incomplete or invalid responses, the final analysis was based on 95 valid questionnaires.The sample consisted of 95 participants, with a nearly balanced gender distribution: 46 males (48.42%) and 49 females (51.58%). The majority of participants were 13 years old (85.26%, Mean age = 12.94, SD = 0.38), with a smaller representation of 12-year-olds (10.53%) and 14-year-olds (4.21%). In terms of basketball training experience, 43.16% had trained for 1 year or less, 28.42% for 1-2 years, and fewer participants had longer training experience, with 7.37% having more than 5 years. Regarding weekly training hours, 67.37% of participants trained for 4 hours or less, 21.05% for 4-8 hours, 3.16% for 8-12 hours, and 8.42% for more than 12 hours.

The model fit results indicate that the model has a certain level of applicability in explaining the relationships between variables, though there is room for improvement. The chi-square value is significant (1985.936, df = 769, $p < 0.05$), suggesting some

discrepancy between the model and observed data. While the CFI (0.777) and TLI (0.763) are slightly below the ideal threshold of 0.90, and the RMSEA (0.129) is above the recommended standard of 0.08, the SRMR is 0.07, which is below 0.08, indicating relatively low residuals and an acceptable fit.

2.1 Evaluation of Model Fit in Confirmatory Factor Analysis (CFA)

Table 16 Model Fit Indices

Metric Category	Metric	Value	Interpretation
Model Fit Indices	Chi-square	1985.936 (df = 769)	Significant, indicating some model-data deviation
Model Fit Indices	CFI	0.777	Below 0.90, room for improvement in model fit
Model Fit Indices	TLI	0.763	Below 0.90, model fit is suboptimal
Model Fit Indices	RMSEA	0.129	Above 0.08, showing need for further improvement
Model Fit Indices	RMSEA 90% CI	[0.122, 0.136]	
Model Fit Indices	SRMR	0.07	Below 0.08, indicating small residuals and acceptable fit

The results of the Confirmatory Factor Analysis (CFA) indicate that while the model shows some acceptable fit indices, there is room for improvement overall. The chi-square value is significant (1985.936, df = 769), with a CFI of 0.777 and a TLI of 0.763, both below the recommended threshold of 0.90. The RMSEA stands at 0.129, exceeding the ideal value of 0.08. However, the SRMR is 0.07, indicating low residuals and an acceptable fit. Overall, these results suggest that the model structure requires further optimization to achieve better fit.

2.2 Confirmatory Factor Analysis (CFA) Results

Table 17 CFA Standardized Loadings for Indicators of Latent Variables

Latent Variable	Item	Factor Loading	Significance (p-value)
Social Support	Q1	1	
Social Support	Q2	1.252	p < 0.001
Social Support	Q3	1.259	p < 0.001
Social Support	Q4	1.373	p < 0.001
Social Support	Q5	1.347	p < 0.001
Social Support	Q6	1.571	p < 0.001
Social Support	Q7	1.595	p < 0.001
Social Support	Q8	1.504	p < 0.001
Situation	Q9	1	
Situation	Q10	0.91	p < 0.001
Situation	Q11	0.928	p < 0.001
Situation	Q12	0.967	p < 0.001
Situation	Q13	0.964	p < 0.001
Situation	Q14	0.928	p < 0.001
Situation	Q15	0.983	p < 0.001
Situation	Q16	0.987	p < 0.001
Situation	Q17	0.938	p < 0.001
Situation	Q18	1.007	p < 0.001
Self-Efficacy	Q19	1	
Self-Efficacy	Q20	0.938	p < 0.001
Self-Efficacy	Q21	0.92	p < 0.001
Self-Efficacy	Q22	0.948	p < 0.001
Self-Efficacy	Q23	1.014	p < 0.001
Self-Efficacy	Q24	1.065	p < 0.001
Self-Efficacy	Q25	1.085	p < 0.001
Self-Efficacy	Q26	1.074	p < 0.001
Self-Efficacy	Q27	1.076	p < 0.001

Self-Efficacy	Q28	1.003	p < 0.001
Self-Efficacy	Q29	1.008	p < 0.001
Outcome Expectations	Q30	1	
Outcome Expectations	Q31	1.097	p < 0.001
Outcome Expectations	Q32	1.058	p < 0.001
Outcome Expectations	Q33	1.142	p < 0.001
Outcome Expectations	Q34	1.073	p < 0.001
Outcome Expectations	Q35	0.898	p < 0.001
Outcome Expectations	Q36	0.391	p=0.003
Outcome Expectations	Q37	0.47	P=0.001
Behavioral Intention	Q38	1	
Behavioral Intention	Q39	1.067	p < 0.001
Behavioral Intention	Q40	0.915	p < 0.001
Behavioral Intention	Q41	1.021	p < 0.001

The results indicate that the factor loadings between each latent variable (social support, situational context, self-efficacy, outcome expectations, and behavioral intention) and their respective items are significant ($p < 0.05$), with most loadings being relatively high, suggesting effective measurement of the latent variables. However, items Q36 and Q37 in the outcome expectations factor have lower loadings (0.391 and 0.470, respectively), indicating potential issues with these items' validity in measuring the construct. Overall, the questionnaire demonstrates good construct validity and reliability, making it suitable for studying relevant social cognitive factors.

3. Empirical analysis and hypothesis testing

3.1 Reliability Analysis of the Preliminary Survey Questionnaire Pre-survey reliability analysis

Table 18 Reliability Analysis of the Preliminary Survey Questionnaire Pre-survey reliability analysis

	Item	Mean（SD）		Correlation (CITI)	Cronbach's Alpha if Item Deleted	Cronbach's Alpha
		T1	T2			
Social Support	Q1	3.13±1.18	3.13±1.180	0.666	0.930	0.932
	Q2	3.45±1.184	3.45±1.184	0.727	0.926	
	Q3	3.46±1.175	3.46±1.175	0.802	0.921	
	Q4	3.59±1.164	3.59±1.164	0.798	0.921	
	Q5	3.81±1.055	3.81±1.055	0.725	0.926	
	Q6	3.66±1.107	3.66±1.107	0.819	0.919	
	Q7	3.73±1.133	3.73±1.133	0.817	0.919	
	Q8	3.58±1.163	3.58±1.163	0.763	0.924	
Situation	Q9	3.65±1.076	3.65±1.076	0.916	0.969	0.973
	Q10	3.64±1.08	3.64±1.080	0.858	0.971	
	Q11	3.63±1.097	3.63±1.097	0.829	0.972	
	Q12	3.72±1.108	3.72±1.108	0.858	0.971	
	Q13	3.63±1.092	3.63±1.092	0.881	0.970	
	Q14	3.79±1.07	3.79±1.070	0.859	0.971	
	Q15	3.76±1.049	3.76±1.049	0.920	0.969	
	Q16	3.71±1.072	3.71±1.072	0.902	0.969	
Self-efficacy	Q17	3.8±1.044	3.80±1.044	0.828	0.972	0.973
	Q18	3.79±1.067	3.79±1.067	0.877	0.970	
	Q19	3.61±1.145	3.61±1.145	0.83	0.97	
	Q20	3.65±1.142	3.65±1.142	0.81	0.97	
	Q21	3.44±1.171	3.44±1.171	0.82	0.97	
	Q22	3.65±1.125	3.65±1.125	0.84	0.97	

	Q23	3.61±1.139	3.61±1.139	0.87	0.97	
	Q24	3.54±1.177	3.54±1.177	0.86	0.97	
	Q25	3.64±1.136	3.64±1.136	0.90	0.97	
	Q26	3.55±1.179	3.55±1.179	0.89	0.97	
	Q27	3.51±1.173	3.51±1.173	0.92	0.97	
	Q28	3.63±1.155	3.63±1.155	0.87	0.97	
	Q29	3.44±1.151	3.44±1.151	0.79	0.88	
	Q30	3.44±1.125	3.44±1.125	0.82	0.88	
	Q31	3.56±1.13	3.56±1.130	0.80	0.88	
	Q32	3.85±1.051	3.85±1.051	0.76	0.88	
Outcome expectations	Q34	3.75±1.128	3.75±1.128	0.81	0.88	0.901
	Q35	3.8±1.075	3.80±1.075	0.72	0.89	
	Q36	3.62±1.049	3.62±1.049	0.42	0.91	
	Q37	2.99±1.244	2.99±1.244	0.45	0.91	
	Q38	3.08±1.257	3.08±1.257	0.80	0.91	
Behavioral intention	Q39	3.55±1.098	3.55±1.098	0.90	0.88	0.925
	Q40	3.6±1.065	3.60±1.065	0.77	0.92	
	Q41	3.62±1.06	3.62±1.060	0.83	0.90	

The "Reliability one week" test helps to verify the short-term stability of a measurement tool, ensuring the reliability of the research results. If the measurement tool maintains a high level of consistency within a week, it indicates that the tool is reliable and can be used for further research and application.

The analysis of the questionnaire responses reveals that the mean scores for the items range between 2.99 and 3.85, indicating that the overall response level is moderate. The standard deviation values range from 1.049 to 1.257, suggesting that there is no significant deviation in the responses, thus confirming the reliability of the items.

For instance, the mean scores for the Social Support items range from 3.13 to 3.81, with standard deviations between 1.055 and 1.180. This suggests that participants generally perceive a moderate level of social support, with responses being fairly consistent across different items.

Reliability analysis is employed to examine the consistency and dependability of responses in quantitative research. Cronbach's Alpha coefficient serves as a crucial indicator for assessing the reliability of survey questionnaires, widely utilized in empirical research data analysis. Generally, a Cronbach's Alpha value below 0.7 suggests that the scale's reliability is low, necessitating a redesign of the scale and questionnaire items. Conversely, Cronbach’s Alpha value above 0.7 indicates that the scale items are reasonably set and exhibit good internal consistency. If the Corrected Item-Total Correlation (CITC) value is below 0.3, it is advisable to consider deleting that item. Additionally, if the "Cronbach's Alpha if Item Deleted" value is significantly higher than the overall Cronbach's Alpha, the item should be reconsidered for deletion followed by reanalysis.

The validity analysis conducted on 95 preliminary survey questionnaires yielded the results shown in Table 8. From the table, we can observe that the Cronbach's Alpha coefficients for five dimensions of the scale exceed 0.7, with CITC values all above 0.6. None of the "Cronbach's Alpha if Item Deleted" values are significantly higher than the overall Cronbach's Alpha. The detailed reliability analysis results are as follows:

Social Support: The Cronbach's Alpha for the Social Support dimension is 0.932. The CITC values for all items range between 0.666 and 0.819, indicating satisfactory item-total correlations. None of the "Cronbach's Alpha if Item Deleted" values are substantially higher than 0.932, affirming the internal consistency of this scale.

Situation: The Cronbach's Alpha for the Situation dimension is exceptionally high at 0.973. CITC values are all above 0.828, with "Cronbach's Alpha if Item Deleted" values ranging from 0.969 to 0.972. This demonstrates an outstanding level of internal consistency across all items within this dimension.

Self-Efficacy: The Self-Efficacy dimension has a Cronbach's Alpha of 0.973. Each item's CITC value is robust, all exceeding 0.81. None of the "Cronbach's Alpha if Item Deleted" values differ significantly from the overall Alpha, indicating a high level of consistency among the items.

Outcome expectations: The Outcome expectations dimension shows a Cronbach's Alpha of 0.901. CITC values for the items are relatively high, between

0.42 and 0.82. While two items ("Outcome expectations 7" and "Outcome expectations 8") exhibit lower CITC values (0.42 and 0.45 respectively), their "Cronbach's Alpha if Item Deleted" values are not markedly higher than 0.901, suggesting retention of these items.

Behavioral intention: The Behavioral intention dimension has a Cronbach's Alpha of 0.925. CITC values range from 0.77 to 0.90, with the "Cronbach's Alpha if Item Deleted" values consistently below the overall Alpha. This indicates a satisfactory level of internal consistency.

In summary, the preliminary reliability analysis suggests that the majority of the questionnaire items exhibit strong internal consistency, which ensures that the final version of the survey questionnaire is both reliable and valid, capable of accurately capturing the targeted constructs in the study.

4. Descriptive statistical analysis

Table 19 Sample Demographic Characteristics

Type		Frequency	Percent
Gender	Male	190	56%
	Female	149	44%
	Total	339	
Age	12	14	4.10%
	13	310	91.40%
	14	15	4.40%
Experience in basketball training	Less than 1 year	162	47.80%
	1-2 years	78	23%
	2-3 years	52	15.30%
	3-4 years	14	4.10%
	4-5 years	10	2.90%
	More than 5 years	23	6.80%
Frequency of' basketball training time	Less than 4 hours	242	71.40%
	4-8 hours	65	19.20%
	8-12 hours	18	5.30%
	More than 12 hours	14	4.10%

The formal survey was completed in May 2024. Before the formal investigation, the author sought five coaches to assist in the distribution of the questionnaire, and conducted unified training on relevant requirements before the questionnaire was distributed. A total of 350 questionnaires were distributed to athletes from 5 clubs. The questionnaires will be distributed at the competition site, and the consent of the coach and parents will be sought before the survey. After the questionnaire is issued, the questionnaire issuer will explain the vernacular meaning of each question to the respondents to facilitate their understanding of the items. It is necessary to ensure that the questionnaire is filled out independently by the respondents under the condition of clear understanding of the meaning. In the end, 345 questionnaires were collected, of which 339 were valid, with a recovery rate of 98% and an effective rate of 96%.

In this study, a total of 339 valid questionnaires were distributed to teenagers participating in basketball training programs. The selection of the 339 participants for this study involved a targeted sampling approach aimed at ensuring a balanced representation of gender and age distribution. Participants were recruited from multiple youth basketball clubs and training centers. The criteria included active involvement in basketball activities and varying levels of training experience. By analyzing basic demographic information such as age, gender, The validity, Experience in basketball training. Frequency of' basketball training time conducted on 339 survey questionnaires yielded the results shown in Table 9. From the table, we can observe that the Cronbach's Alpha coefficients for five dimensions of the scale exceed 0.7, with CITC values all above 0.6. None of the "Cronbach's Alpha if Item Deleted" values are significantly higher than the overall Cronbach's Alpha. The detailed reliability analysis results are as follows, we obtained the demographic characteristics of the research sample, as shown in Table 9

The sample includes participants from ages 12 to 14. The age distribution shows that the majority of participants are aged 13, making up 91.4% of the sample, followed by 14-year-olds at 4.4%, and 12-year-olds at 4.1%.

Among the 339 participants, there are 190 boys, accounting for 56%, and 149 girls, accounting for 44%. This gender distribution highlights the involvement of both male and female adolescents in basketball training.

Participants' training duration varies, with most having been involved in basketball training for less than one year (47.8%), followed by 1-2 years (23%), and 2-3 years (15.3%). Those with training durations of 3-4 years, 4-5 years, and more than 5 years account for smaller percentages (4.1%, 2.9%, and 6.8%, respectively).

The weekly training hours show that the majority of participants train for less than 4 hours per week (71.4%), followed by those training 4-8 hours per week (19.2%). Smaller percentages train 8-12 hours (5.3%) and more than 12 hours per week (4.1%).

5. Reliability and validity analysis

5.1 Reliability analysis

As can be seen from Table 20, the Cronbach's Alpha coefficient values corresponding to each dimension of the scale are all greater than 0.89, indicating that the questionnaire has good internal consistency and has passed the reliability test, making it suitable for subsequent analysis.

Table 20 Reliability test results table

Variable	Num of Items	Cronbach's α	Overall Cronbach's α
Social Support	8	0.944	
Situation	10	0.974	
Self-efficacy	11	0.973	0.985
Outcome expectations	8	0.896	
Behavioral intention	4	0.936	

5.2 Exploratory Factor Analysis

Before conducting factor analysis, it is essential to perform the Kaiser-Meyer-Olkin (KMO) test and Bartlett's test of sphericity to determine the suitability of the data for factor analysis. A KMO value greater than 0.9 indicates excellent suitability for factor analysis, values between 0.7 and 0.9 indicate that factor analysis can be performed, values between 0.6 and 0.7 suggest less suitability, and values below 0.5 indicate that factor analysis is not appropriate.

Table 21 KMO and Bartlett's Test Result

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.972
Bartlett's Test of Sphericity	Approx Chi-Squre	18107.471
	df	820
	Sig	0.0001

Based on the results, the KMO value is 0.972, which is greater than 0.9, indicating excellent suitability for factor analysis. The Bartlett's test of sphericity shows an approximate chi-square value of 18107.471 with a significance level of 0.000 ($P<0.01$), rejecting the null hypothesis and confirming the data's suitability for factor analysis.

This study developed and evaluated a questionnaire involving social support, situational factors, self-efficacy, outcome expectations, and behavioral intention through literature review, expert review, pre-testing, and formal testing, providing a reliable measurement tool for research on adolescent basketball training.

Phase II

This study distributed 339 questionnaires and used survey methods and path analysis to analyze the factors influencing adolescents' behavioral intention in basketball training and to explore gender differences

1. Analysis of Regression Results

1.1Key Variables for Intervention in Males and Female:

Table 22 Male Participants

Item	Positively Correlated Items	Coefficient	p-value
Q3	Q39	0.2133	0.006
Q3	Q40	0.2133	0.006
Q3	Q41	0.2183	0.011
Q16	Q39	0.385	0.003
Q16	Q40	0.245	0.038
Q16	Q41	0.265	0.033
Q20	Q39	0.257	0.025
Q21	Q39	0.142	0.047
Q36	Q40	-0.128	0.048
Q25	Q41	-0.195	0.037
Q1	No significant results for all items	-	-
Q13	No significant results for all items	-	-
Q4-Q12	No significant results for all items	-	-

Q14-Q35	No significant results for all items	-	-
Q37	No significant result	-	-

Based on the data in Table 22, the following is a detailed analysis of the regression coefficients and their significance levels for each item and its correlated variables.

First, Q3 shows a significant positive correlation with several variables. Specifically, Q3 has a regression coefficient of 0.2133 with Q39 and a P-value of 0.006; it also has a regression coefficient of 0.2133 with Q40, with the same P-value of 0.006; and a regression coefficient of 0.2183 with Q41, with a P-value of 0.011. These results indicate that Q3 has a significant positive effect on Q39, Q40, and Q41 in the male sample, and these effects are statistically significant ($P<0.05$).

Next, Q16 also shows a significant positive correlation with several variables. The regression coefficient between Q16 and Q39 is 0.385, with a P-value of 0.003, indicating a strong positive correlation between the two. Additionally, Q16 has a regression coefficient of 0.245 with Q40 and a P-value of 0.038, and a regression coefficient of 0.265 with Q41 and a P-value of 0.033, both showing significant positive effects.

The relationship between Q20 and Q39 also reaches a significant level, with a regression coefficient of 0.257 and a P-value of 0.025, indicating a clear positive effect of Q20 on Q39. Similarly, Q21 has a regression coefficient of 0.142 with Q39 and a P-value of 0.047, which also indicates a significant impact of Q21 on Q39 in the male sample.

In terms of negative correlations, Q36 has a regression coefficient of -0.128 with Q40 and a P-value of 0.048, indicating a significant negative correlation between the two. Similarly, Q25 has a regression coefficient of -0.195 with Q41 and a P-value of 0.037, indicating a significant negative effect of Q25 on Q41.

However, other variables such as Q1, Q13, as well as Q4 to Q12, Q14 to Q35, and Q37 did not show significant correlations ($P>0.05$). These results suggest that there is no statistically significant relationship between these variables and other

items, which may indicate that these variables have limited or no predictive power in the male sample.

In summary, the analysis in Table 13 shows that Q3 and Q16 have significant positive relationships with several variables in the male sample, while Q36 and Q25 exhibit significant negative relationships. Other variables, however, did not reach significance levels, indicating that these variables have limited impact in the male sample.

Table 23 Female Participants

Item	**Positively Correlated Items**	**Coefficient**	**p-value**
Q16	Q40	0.385	0.001
Q30	Q39	0.2183	0.011
Q30	Q40	0.385	0.008
Q30	Q41	0.2183	0.011
Q25	Q41	-0.195	0.037
Q1	No significant results for all items	-	-
Q13	No significant results for all items	-	-
Q4-Q29	Except for significant variables, no other significant results	-	-

Q31-Q37	No significant results for all items	-	-

Based on the data in Table 23, the following is a detailed analysis of the regression coefficients and their significance levels for each item and its correlated variables among female participants.

First, Q16 shows a significant positive correlation with Q40, with a regression coefficient of 0.385 and a P-value of 0.001. This indicates a strong positive relationship between Q16 and Q40 in the female sample, and this effect is statistically significant ($P<0.05$).

Next, Q30 demonstrates significant positive correlations with multiple variables. Specifically, Q30 has a regression coefficient of 0.2183 with Q39 and a P-value of 0.011; it also has a regression coefficient of 0.385 with Q40, with a P-value of 0.008; and a regression coefficient of 0.2183 with Q41, with a P-value of 0.011. These results suggest that Q30 has a significant positive impact on Q39, Q40, and Q41 in the female sample, indicating consistent and statistically significant effects across these variables.

However, Q25 shows a significant negative correlation with Q41, with a regression coefficient of -0.195 and a P-value of 0.037. This indicates that in the female sample, an increase in Q25 is associated with a significant decrease in Q41.

On the other hand, variables such as Q1 and Q13 did not show significant correlations with any other variables, indicating no statistically significant relationships ($P>0.05$) within the female sample. Similarly, for Q4 to Q29, except for the variables already identified as significant, no other significant relationships were observed. Lastly, Q31 to Q37 also did not show significant results for any of the correlated items.

In summary, the analysis in Table 14 reveals that Q16 and Q30 exhibit significant positive relationships with certain variables in the female sample, while Q25 demonstrates a significant negative relationship with Q41. Other variables did not reach significance levels, indicating that these variables have limited impact in the female sample.

Phase III

We conducted a three-month intervention for male and female groups and used Regression analysis to evaluate the impact of the intervention on adolescents' behavioral intention in basketball training.

Table 24 Characteristics of Participants

Variables	Numbers	Percentage (%)	Mean（SD）
Gender			
Male	88	50.29%	
Female	87	49.71%	
Total	175		
Age（year old）			
12	6	3.43%	
13	146	83.43%	13.1±0.4
14	23	13.14%	
Experience in basketball training			
1 year and below	47	26.86%	
1-2 years	37	21.14%	
2-3 years	39	22.29%	
3-4 years	19	10.86%	
4-5 years	11	6.29%	
More than 5 years	22	12.59%	
Frequency of' basketball training time			
4 hours and below	73	41.71%	
4-8 hours	38	21.71%	
8-12 hours	17	9.71%	
More than 12 hours	47	26.86%	

Table 24 provides an overview of the characteristics of the participants. The sample consisted of 175 individuals, with 50.29% males (88 participants) and 49.71% females (87 participants). The majority were 13 years old, making up 83.43% of the group, with a mean age of 13.1 years. Regarding basketball experience, 26.86% had one year or less of training, while 12.59% had more than five years of experience. In terms of training frequency, 41.71% trained for four hours or less weekly, while 26.86% trained for more than 12 hours.

Table 25 Comparing pre-test and post-test scores of overall after 12-week intervention

Variables	Total（n=175）		p-value
	Pre-test	Post-test	
Social Support	3.98	4.15	0.0003
Situation	3.87	4.03	0.00001
Self-efficacy	3.75	3.96	0.00001
Outcome Expectations	3.82	4.04	0.00001
Behavior intention	3.89	4.08	0.00002

The comparison between pre-test and post-test scores in Table 25 demonstrates that participants made significant progress across all dimensions after the intervention. For Social Support, the average score increased from 3.98 to 4.15, with a p-value of 0.0003, indicating statistical significance. In the Situational dimension, the score rose from 3.87 to 4.03, with a p-value of 0.00001, also showing a significant improvement. The Self-Efficacy dimension saw an increase from 3.75 to 3.96, with a p-value of 0.00001, indicating a significant enhancement. Outcome Expectations improved from 3.82 to 4.04, with a p-value of 0.00001, reflecting significant progress. Finally, Behavior intention scores increased from 3.89 to 4.08, with a p-value of 0.00002, demonstrating a statistically significant change. These results suggest that the intervention had a positive impact across all measured areas.

Table 26 Characteristics of male and female

Characteristics	Male（n=88）			Female（n=87）		
	Numbers	Percentage (%)	p-value	Numbers	Percentage (%)	p-value
Age（year old）	25	28.41	0.287	20	22.99	0.287
Experience in basketball training	30	34.09	0.287	32	36.78	0.287
1 year and below	33	37.5	0.287	35	40.23	0.287
1-2 years	10	11.36	0.287	15	17.24	0.287
2-3 years	15	17.05	0.287	18	20.69	0.287
3-4 years	12	13.64	0.287	14	16.09	0.287
4-5 years	18	20.45	0.287	22	25.29	0.287

More than 5 years	5	5.68	0.287	7	8.05	0.287
Frequency of' basketball training time	8	9.09	0.287	11	12.64	0.287
4 hours and below	20	22.73	0.287	18	20.69	0.287
4-8 hours	25	28.41	0.287	22	25.29	0.287
8-12 hours	30	34.09	0.287	28	32.18	0.287
More than 12 hours	13	14.77	0.287	19	21.84	0.287

Table 26 shows that the distribution of age, basketball training experience, and training frequency is relatively similar between males (n=88) and females (n=87). For instance, the proportion of males and females with 1 year or less of training experience is 37.5% and 40.23%, respectively, while 34.09% of males and 32.18% of females reported training 8-12 hours per week. Chi-square test results indicate no statistically significant differences between genders across these characteristics (p=0.287), suggesting an overall balanced distribution with no notable gender disparities.

Table 27 Comparing pre-test and post-test scores in each gender after 12-week intervention

Variables	**Male**			**Female**		
	Pre-test	**Post-test**	**p-value**	**Pre-test**	**Post-test**	**p-value**
Social Support	3.42	4.09	P<0.001	3.21	4.18	P<0.001
Situation	3.57	4.37	P<0.001	3.39	4.12	P<0.001
Self-efficacy	3.51	4.22	P<0.001	3.26	4.23	P<0.001
Outcome Expectations	3.59	4.24	P<0.001	3.36	4.05	P<0.001
Behavior intention	3.19	3.77	P<0.001	3.3	4.27	P<0.001

Based on the data from Table 27, the intervention measures significantly positively impacted both male and female participants across various dimensions. For **social support**, both males and females showed substantial improvements post-intervention. Males' scores increased from 3.42 to 4.09, while females' scores rose from 3.21 to 4.18, with P-values less than 0.001, indicating that the intervention

significantly enhanced their sense of social support. In terms of **situational factors**, improvements were also significant, with males' scores rising from 3.57 to 4.37 and females' scores from 3.39 to 4.12, with P-values less than 0.001, demonstrating the intervention's effectiveness in enhancing their adaptability to the training environment. For **self-efficacy**, males' scores increased from 3.51 to 4.22 and females' from 3.26 to 4.23, with P-values less than 0.001, showing that the intervention significantly boosted their confidence and ability to handle training challenges. **Outcome expectations** also showed significant improvements, with males' scores rising from 3.59 to 4.24 and females' from 3.36 to 4.05, with P-values less than 0.001, indicating that the intervention strengthened their positive expectations regarding training outcomes. Lastly, in terms of **behavioral intention**, females' scores rose significantly from 3.30 to 4.27, while males' scores increased from 3.19 to 3.77, with P-values less than 0.001, showing that the intervention had a particularly notable impact on female participants' behavioral intention. Overall, the intervention measures demonstrated significant positive effects on social support, situational adaptability, self-efficacy, outcome expectations, and behavioral intention for both males and females, with particularly pronounced improvements in self-efficacy and behavioral intention for females.

Table 28 Comparison of situation and self-efficacy between gender after 12-week intervention

Variable	**Pre-test**		**p-value**	**Post-test**		**p-value**
	Male	Female	Pre-test between Gender	Male	Female	Post-test between Gender
Situation	3.57	3.35	0.144	4.34	4.36	0.805
Self-efficacy	3.52	3.32	0.185	4.24	4.28	0.694

Table 28 presents the comparison results between genders before and after the intervention on the same factors, specifically Situation and Self-efficacy. The table highlights the mean scores of males and females for these two variables, as well as the p-values between genders both before and after the intervention, to assess any gender differences in the effectiveness of the intervention. The results indicate that prior to the intervention, gender differences in both Situation and Self-efficacy were not

statistically significant, with p-values of 0.144 and 0.185, respectively. After the intervention, the differences in scores between males and females for both Situation and Self-efficacy remained insignificant, with p-values of 0.805 and 0.694, respectively.

Despite the implementation of the same intervention, the findings suggest that gender differences in Situation and Self-efficacy did not reach statistical significance either before or after the intervention. This suggests that the intervention had a comparable effect on participants of different genders, without resulting in significant gender-based differences.

Table 29 Comparison of social support, outcome expectations and behavior intention between gender after 12-week intervention

Variable	Pre-test		p-value	Post-test		p-value
	Male	Female	Pre-test between Gender	Male	Female	Post-test between Gender
Social Support	3.37	3.17	0.2	4.05	4.16	0.342
Outcome Expectations	3.59	3.35	0.099	4.24	4.29	0.66
Behavior intention	3.19	3.24	0.724	3.77	3.79	0.867

Based on the data analysis results shown in Table 29 both male and female scores in social support, outcome expectations, and behavioral intention increased before and after the intervention. However, the differences between genders did not reach statistical significance (P-values were all greater than 0.05). Specifically, before the intervention, the score differences between males and females for social support, outcome expectations, and behavioral intention were 0.2, 0.099, and 0.724, respectively; after the intervention, these differences were 0.342, 0.66, and 0.867, respectively. These results indicate that while the intervention effectively improved scores in these three dimensions for adolescents, the effect did not significantly differ between genders, suggesting that the impact of the intervention is statistically similar for both males and females.

The three-month intervention demonstrated significant positive effects on adolescents' behavioral intentions in basketball training, as shown by improvements across all measured dimensions, including social support, situational adaptability, self-efficacy, outcome expectations, and behavioral intentions. Results from the pre- and post-test comparisons indicate that both male and female participants exhibited significant growth in these areas. Specifically, all participants showed notable increases in social support (from 3.98 to 4.15), situational adaptability (3.87 to 4.03), self-efficacy (3.75 to 3.96), outcome expectations (3.82 to 4.04), and behavioral intention (3.89 to 4.08), with p-values indicating statistical significance.

Gender analysis revealed that, while males and females both benefited significantly from the intervention, female participants experienced particularly strong gains in behavioral intention. Nevertheless, comparisons of post-intervention scores between genders showed no statistically significant differences across dimensions, including social support, outcome expectations, and behavioral intention. This suggests that the intervention was equally effective for both genders, enhancing their behavioral intentions in basketball training without creating significant gender-based disparities in outcomes.

Overall, the intervention successfully promoted adolescents' motivation, confidence, and positive expectations in basketball training, contributing to improved training intentions across gender groups.

CHAPTER V

DISCUSSIONS AND CONCLUSIONS

This study assessed the impact of specific interventions on adolescents' behavioral intention in basketball training, highlighting the importance of four key factors: social support, situation, self-efficacy, and outcome expectations. The research found that the intervention significantly enhanced the behavioral intention of adolescents, with a more pronounced effect observed in the female group, thereby narrowing the gender gap. The results indicate that well-designed intervention strategies can effectively boost adolescents' intention to participate in sports, providing valuable insights for applying these strategies in broader physical education contexts in the future.

Discussions

Revision, Validation, and Theoretical Basis of the Questionnaire for Assessing Social Cognitive Factors in Adolescent Basketball Training

1.Revision and Validation of the Questionnaire for Assessing Social Cognitive Factors in Adolescent Basketball Training

The primary objective of this study was to assess a revised questionnaire designed to reliably measure social cognitive factors among adolescents participating in basketball training, including social support, Situation, self-efficacy, outcome expectations, and behavioral intention. Validation through confirmatory factor analysis (CFA) indicated that the instrument demonstrated strong internal consistency (Cronbach's alpha > 0.80) and robust construct validity (Hu & Bentler, 1999), suggesting its suitability for application in youth sports. These findings align with prior research emphasizing the importance of reliable psychometric tools for assessing social cognitive constructs in sports settings (Bandura, 1997). The validated questionnaire can thus serve as an effective tool for monitoring and enhancing training programs aimed at improving participation and performance in adolescent basketball players.

2. Development process and theoretical foundations

Development Process and Theoretical Foundations

This questionnaire was adapted from an existing instrument designed to measure behavioral intention in baseball players, incorporating Social Cognitive Theory (SCT) to align it with the context of basketball training. SCT emphasizes that behavior is shaped by dynamic interactions between personal, environmental, and behavioral factors (Bandura, 1986). The questionnaire includes dimensions such as social support, situation, self-efficacy, and outcome expectations, ensuring its alignment with SCT's triadic reciprocal causation model. This model highlights how personal beliefs (e.g., self-efficacy), perceived social influences (e.g., social support), and situational factors (e.g., training conditions) interact to influence behavioral intentions.

The questionnaire modification was rigorously guided by a comprehensive literature review, expert input, and small-scale pre-testing to ensure content validity. Based on the structure of the baseball questionnaire, specific adjustments were made to cater to the characteristics of basketball, such as training goals, environmental demands, and participant profiles (Zhang, 2022). Additionally, the study referenced existing research on youth sports participation, emphasizing the critical roles of parental and peer support, the quality of training facilities, and perceived competence (Horn, 2002; Bandura, 1997). This modification process ensured that the questionnaire was better suited to the practical context of adolescent basketball training, enhancing its relevance and applicability.

3. Reliability and validity assessment

Multiple statistical methods were employed to evaluate the reliability and validity of the questionnaire. Internal consistency was assessed using Cronbach's alpha, with all subscales yielding values above 0.89, demonstrating high reliability (Kline, 1998). These high reliability scores indicate that the items within each subscale consistently measure their intended constructs.

Construct validity was further confirmed through exploratory factor analysis (EFA). The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy reached 0.972, suggesting that the sample was highly suitable for factor analysis (Hair et al., 2010). Bartlett's test of sphericity was also statistically significant, validating the

data's suitability for EFA. The analysis showed that each dimension accounted for a significant portion of the variance, with the total cumulative variance explained exceeding 60%, which meets the criteria for robustness in social science research (Fabrigar et al., 1999).

Exploring Key Factors Influencing Adolescents' Behavioral Intention to Participate in Basketball Training and Gender Differences

Mechanisms of Key Factors

1.Social Support: The study found that social support from parents, coaches, and peers significantly impacts adolescents' behavioral intention to participate in basketball training. This finding aligns with existing research, which underscores the importance of parental involvement and peer encouragement in enhancing adolescents' motivation for sports (Horn, 2002; Yao & Shapiro, 2016). For instance, items related to parental support (e.g., Q3) showed significant positive correlations with behavioral intention items (Q39-Q41), highlighting family support as a critical driver of adolescents' engagement in sports activities.

2.Situational Factors: Adolescents' perceptions of their training environment, such as the professionalism of coaches and the quality of facilities, were found to be closely related to their participation intention. The study observed that positive evaluations of coaches (e.g., Q16) were positively correlated with behavioral intention, indicating that a supportive coaching environment is essential for enhancing adolescents' willingness to participate. This finding aligns with Altavilla and Raiola (2014), who emphasized the importance of coach-athlete relationships in fostering motivation and performance.

3.Self-Efficacy: The study confirmed that self-efficacy plays a pivotal role in influencing adolescents' behavioral intention to participate in basketball training. Adolescents who exhibit confidence in overcoming training challenges (e.g., Q25) demonstrated higher participation intention. This finding is consistent with Bandura's (1997) theory, which identifies self-efficacy as a key determinant of motivation and behavior.

4.Outcome Expectations: Outcome expectations emerged as an important predictor of behavioral intention. The study found that adolescents' concerns about

academic performance (e.g., Q36) were negatively correlated with participation intention, reflecting the need to balance sports participation with academic responsibilities (Fredricks & Eccles, 2006). Conversely, positive expectations of personal and social rewards (e.g., Q30) were positively correlated with behavioral intention, indicating that favorable anticipated outcomes significantly enhance adolescents' motivation to engage in basketball training.

In conclusion, social support, situational factors, self-efficacy, and outcome expectations are key factors influencing adolescents' behavioral intention to participate in basketball training. While the core mechanisms of these factors are consistent across genders, subtle gender preference differences offer directions for optimizing future intervention strategies. The findings of this study provide theoretical and practical support for adolescent basketball training and foundational data for designing gender-sensitive training programs.

The impact of intervention on adolescents' behavioral intention in basketball training

1. Impact of intervention on adolescents' behavioral intention in basketball training

The three-month intervention had a significant positive impact on adolescents' behavioral intention to participate in basketball training. As illustrated in Table 21, participants' scores in social support, Situation, self-efficacy, outcome expectations, and behavioral intention all significantly increased post-intervention. Specifically, social support scores rose from 3.98 to 4.15, Situation scores increased from 3.87 to 4.03, self-efficacy scores improved from 3.75 to 3.96, outcome expectations went from 3.82 to 4.04, and behavioral intention scores climbed from 3.89 to 4.08. These findings underscore the intervention's effectiveness in enhancing adolescents' participation intentions, aligning with Bandura's (1997) Social Cognitive Theory, which underscores the importance of self-efficacy and social support as key motivators for behavioral intention.

2. Gender differences in impact

Both male and female participants experienced significant improvements across all measured dimensions due to the intervention. Both genders displayed notable

progress in social support, Situation, self-efficacy, outcome expectations, and behavioral intention. However, females exhibited particularly marked improvements in self-efficacy and behavioral intention, suggesting a higher sensitivity to such interventions. This aligns with Eccles & Harold's (1991) research, which highlighted that females often depend more on social support and positive reinforcement in sports activities, a finding that resonates with this study.

Specific Dimension Comparisons:Gender differences in Situation, self-efficacy, social support, outcome expectations, and behavioral intention were not statistically significant either before or after the intervention. Although both male and female scores improved substantially, there were no significant differences in the overall impact between genders, indicating that the intervention was equally effective for both groups. This outcome supports prior research, such as Bailey et al. (2009), which also found that gender-based variations in motivational factors for sports participation were not consistently significant.

3. Gender-specific impact of the intervention

While the intervention was broadly effective for both male and female adolescents, females demonstrated greater gains in specific areas such as self-efficacy and behavioral intention. This could be attributed to females' greater need for emotional support and confidence-boosting interventions (Fredricks & Eccles, 2005). These findings suggest that intervention programs should consider tailoring strategies to the unique needs of each gender to maximize the effectiveness of the training and engagement.

Conclusions

1. Evaluation of the Revised Questionnaire

The primary goal of this study was to evaluate the revised questionnaire designed to measure key social cognitive factors-social support, situational factors, self-efficacy, outcome expectations, and behavioral intention-in adolescent basketball training. Through confirmatory factor analysis (CFA), the instrument demonstrated robust construct validity and internal consistency (Cronbach's alpha > 0.80), confirming its reliability and suitability for application in youth sports contexts.

The questionnaire serves as a valuable tool for assessing the psychological and social influences on adolescents' sports participation. Its utility extends beyond assessment, providing a foundation for designing tailored training programs and interventions aimed at enhancing participation and performance. The validation process highlighted its practical relevance and theoretical alignment with Social Cognitive Theory (SCT), which emphasizes the interplay of personal, environmental, and behavioral factors.

2. Key Factors Influencing Behavioral Intention

The study identified four critical factors that significantly influence adolescents' behavioral intentions in basketball training:

Social Support: The analysis revealed that support from parents, coaches, and peers plays a pivotal role in shaping adolescents' participation intentions. This aligns with prior research highlighting the motivational impact of parental involvement and peer encouragement in youth sports.

Situational Factors: Perceptions of the training environment, including coach professionalism and facility quality, were strongly linked to participation intentions. These findings emphasize the importance of creating supportive and resourceful environments to foster engagement.

Self-Efficacy: Adolescents' confidence in their ability to overcome training challenges emerged as a significant predictor of their behavioral intentions. This underscores the central role of self-efficacy, as proposed by Bandura (1997), in shaping motivation and sustained engagement.

Outcome Expectations: Positive expectations regarding the benefits of participation (e.g., social rewards, skill improvement) were positively associated with behavioral intention, while concerns about academic trade-offs negatively influenced it. These findings reflect the dual motivational drivers of anticipated gains and perceived barriers.

Gender Differences: While the key factors influencing behavioral intention were consistent across genders, subtle differences were observed. Female participants demonstrated higher responsiveness to social support and self-efficacy, highlighting the importance of emotional reinforcement and confidence-building interventions.

This aligns with prior studies suggesting that females often rely more on interpersonal encouragement in sports settings.

3. Impact of Intervention on Behavioral Intention (Objective 3)

The three-month intervention significantly enhanced adolescents' behavioral intentions to participate in basketball training. Post-intervention scores for all dimensions—social support, situational factors, self-efficacy, outcome expectations, and behavioral intention—showed substantial improvements. These findings validate the intervention's effectiveness in promoting positive psychological and behavioral changes, aligning with SCT's principles.

Gender-Specific Impact: Both male and female participants benefited significantly from the intervention, but females exhibited greater gains in self-efficacy and behavioral intention. This suggests that tailored interventions addressing the unique motivational needs of each gender can further optimize outcomes. The findings underline the importance of designing gender-sensitive training programs that cater to specific preferences and challenges faced by males and females.

Limitations of the Study

Despite offering valuable insights into the factors influencing youth participation in basketball training, this study has several limitations that should be acknowledged for a comprehensive understanding of the results and their implications.

Sample Representativeness: The study sample was primarily drawn from basketball clubs in Guangxi, potentially limiting the generalizability of the findings. The basketball culture, training resources, and social support systems in Guangxi may differ significantly from those in other regions or countries. This regional specificity could mean that the results may not apply universally. Future research should consider a broader sampling strategy, including youth basketball participants from diverse regions, encompassing both urban and rural settings and different socio-economic backgrounds. Expanding the sample in this way would provide a more comprehensive understanding of youth basketball training behavior across varied environments and better support the application of SCT across different contexts.

Self-Reporting Bias: The reliance on self-reported data for variables such as self-efficacy and behavioral intention introduces the risk of social desirability bias and inaccuracies in recall. This potential bias may affect the authenticity and reliability of the data. Although self-reports are a common and useful tool in social science research, incorporating objective measures, such as direct observation, digital behavior tracking, or physiological measurements (e.g., heart rate monitoring during training), could provide more accurate data. Additionally, employing longitudinal designs would help validate the robustness of the findings over time, enhancing the reliability of SCT applications in understanding behavioral intentions.

Intervention Duration and Sample Size: The study's intervention period of three months and the sample size may limit the generalizability of the findings and the interpretation of long-term behavioral changes. A three-month period may not fully capture sustained behavior changes and could underestimate the long-term impact of interventions. Expanding future studies to include larger, more diverse samples and extending the duration of interventions and follow-up periods could yield deeper insights into the sustainability of observed improvements in self-efficacy, social support, and behavioral intentions. Such adjustments would align with SCT's emphasis on continuous interactions between personal, behavioral, and environmental factors over time.

Control Group Absence: The absence of a control group poses a challenge in attributing observed changes solely to the intervention. Without a control group, external factors could also contribute to the outcomes, limiting the ability to make strong causal inferences. Future studies should include a control group to better isolate the effects of the intervention and strengthen the validity of causal claims. This inclusion would enhance the ability to draw clearer connections between SCT-based interventions and their direct effects on behavioral intentions.

Future Research Directions

Research Implications and Future Directions：This study has deepened our understanding of the effects of interventions, especially concerning gender differences, and provides valuable insights for designing future interventions.

Building on the findings of this study, future research could explore the following directions:

Exploring Additional Social Cognitive Factors: While this study focused on social support, situational factors, self-efficacy, and outcome expectations, future research should investigate additional social cognitive variables such as team atmosphere, peer influence, cultural norms, and parental attitudes. Understanding how these elements influence adolescent sports participation can offer a more comprehensive view of what drives or hinders engagement. For instance, examining the impact of team dynamics and peer interactions in various cultural contexts or assessing how parental attitudes toward sports influence adolescents' participation intentions would provide valuable insights.

Cross-Cultural Applicability: Future studies should aim to test the questionnaires and interventions used in this research across diverse cultural settings to evaluate their cross-cultural applicability and generalizability. This would help reveal how cultural differences shape youth sports participation behaviors, particularly the roles of social support and self-efficacy. For example, comparing the sports culture and educational systems of different countries and their impact on youth engagement can inform global sports education strategies.

Longitudinal Studies: Research should also focus on how social cognitive factors evolve over time and their long-term effects on sports participation behavior. Conducting longitudinal studies would enable the tracking of changes in motivation, self-efficacy, and behavioral intentions across various stages of adolescent development. This approach could provide valuable insights into how these factors contribute to sustained participation and help design age-appropriate, long-term support systems for youth sports engagement.

Technology Integration in Interventions: With the rapid growth of technology, it is important to explore how digital tools can be incorporated into sports training. Future research could investigate the use of mobile apps, virtual coaching, and online community platforms to enhance social support and self-efficacy. Assessing the effectiveness of these technologies in boosting engagement and behavioral intention could open up new avenues for creating more interactive and personalized training experiences.

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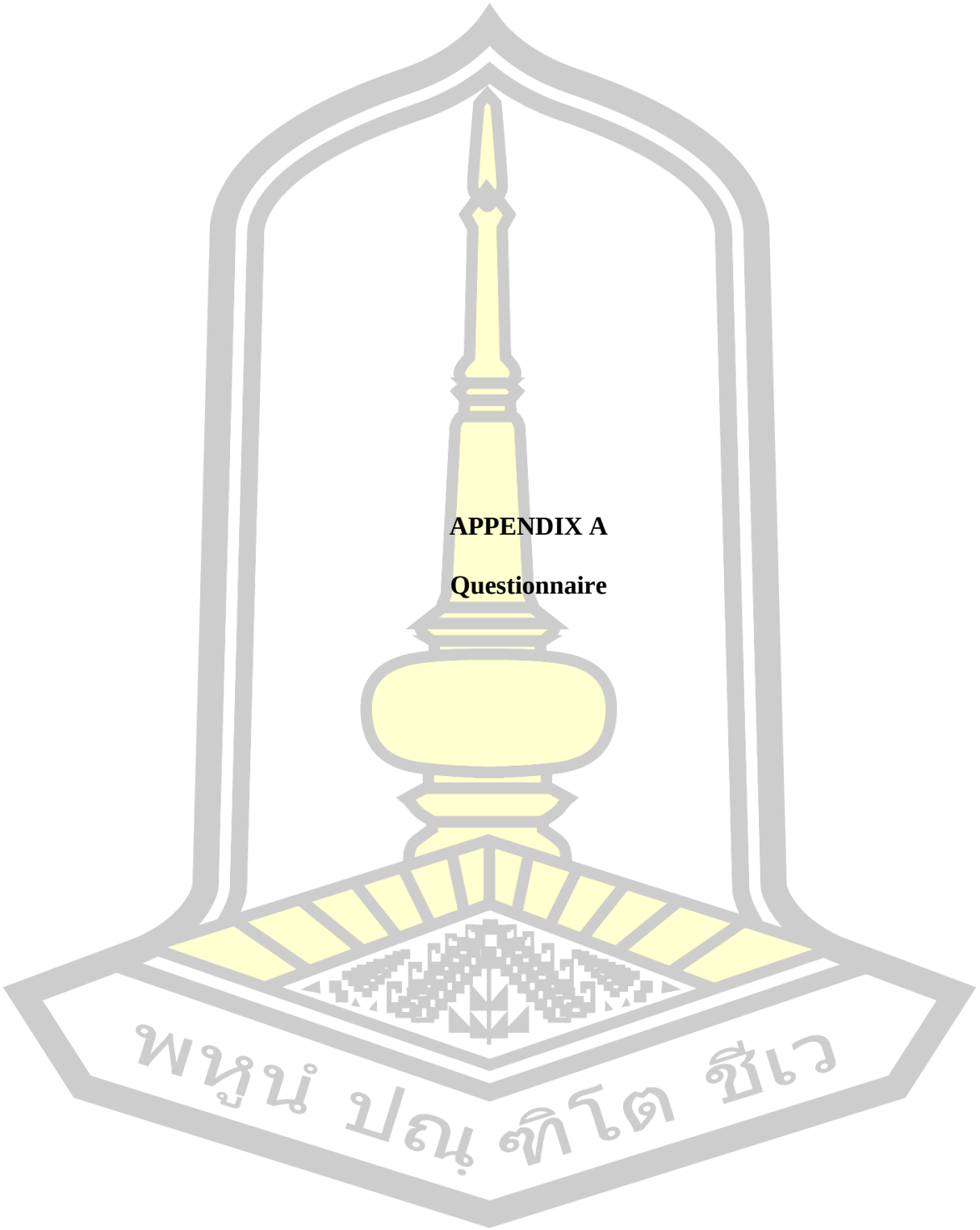
APPENDIX



APPENDIX A

Questionnaire

Questionnaire on Influencing Factors of Youth Basketball Participation Intention

Dear Classmates:

Thank you very much for participating in this research for my graduation thesis. This form is designed to survey how supportive your parents, friends, and teachers are, your reasons for participating in basketball training, and your willingness to participate in basketball training. This survey is anonymous; you do not need to fill in your name. All information will be used solely for scientific research. Please put a "√" in the appropriate boxes or fill in the blanks as required. Thank you again for your participation!

First Part:

1.Your Gender:

1.☐ Male

2.☐ Female

2.Your Age:

1.☐ 12 years old and below

2.☐ 13 years old

3.☐ 14 years old and older

3.Experience in basketball training:

1.☐ 1 year and below

2.☐ 1-2 years

3.☐ 2-3 years

4.☐ 3-4 years

5.☐ 4-5 years

6.☐ 5 years or more

4.Frequency of' basketball training time?

1.☐ 4 hours and less

2.☐ 4-8 hours

3.☐ 8-12 hours

4.☐ More than 12 hours

Second Part:

1. Social Support

Question	Completely Disagree	Disagree	Neutral	Agree	Completely Agree
1. My parents would go to basketball practice with me.	☐	☐	☐	☐	☐
2. My parents will take me to basketball training places or places where I can contact basketball.	☐	☐	☐	☐	☐
3. My parents would watch me play basketball.	☐	☐	☐	☐	☐
4. My parents would tell me that I was doing well in basketball.	☐	☐	☐	☐	☐
5. I will encourage my friends to participate in basketball.	☐	☐	☐	☐	☐
6. My friends will encourage me to participate in basketball.	☐	☐	☐	☐	☐
7. My friends will participate in basketball activities with me.	☐	☐	☐	☐	☐
8. My friends will tell me that I am better at basketball.	☐	☐	☐	☐	☐

2. Situation

Question	Completely Disagree	Disagree	Neutral	Agree	Completely Agree
1. The court equipment at the training location can meet my basketball training needs.	☐	☐	☐	☐	☐
2. I can conveniently use the court equipment at the training location for	☐	☐	☐	☐	☐

Question	Completely Disagree	Disagree	Neutral	Agree	Completely Agree
basketball training.					
3. The format and content of the training courses are very attractive to me.	☐	☐	☐	☐	☐
4. The training courses played a positive role in the formation of my interest in basketball.	☐	☐	☐	☐	☐
5. Training locations often organize participation in various competitions.	☐	☐	☐	☐	☐
6. My training coaches work seriously and responsibly.	☐	☐	☐	☐	☐
7. My training coaches have professional basketball skills and teaching levels.	☐	☐	☐	☐	☐
8. I like my training coaches very much.	☐	☐	☐	☐	☐
9. Most of the teammates in my team enjoy participating in basketball training very much.	☐	☐	☐	☐	☐
10. The basketball atmosphere in the team is strong.	☐	☐	☐	☐	☐

3. Self-Efficacy

Question	Completely Disagree	Disagree	Neutral	Agree	Completely Agree
1. I can ask my parents or coaches to take me to basketball training and games.	☐	☐	☐	☐	☐
2. I can ask my best friend to accompany me to basketball training.	☐	☐	☐	☐	☐
3. I can let my parents attend basketball training together.	☐	☐	☐	☐	☐
4. I think I have the athleticism required for basketball.	☐	☐	☐	☐	☐
5. Even if I feel tired from studying, I will still participate in basketball training.	☐	☐	☐	☐	☐
6. No matter what the weather is like, I will	☐	☐	☐	☐	☐

Question	Completely Disagree	Disagree	Neutral	Agree	Completely Agree
still participate in basketball training.					
7. No matter what difficulties arise in basketball training, I am confident that I can solve them.	☐	☐	☐	☐	☐
8. Even if I have to stay at home, I still want to participate in basketball training.	☐	☐	☐	☐	☐
9. Even though I have homework to complete, I still want to participate in basketball training.	☐	☐	☐	☐	☐
10. When I have nothing to do, I would like to participate in basketball training.	☐	☐	☐	☐	☐
11. Even if my friends want to participate in other activities with me, I will still participate in basketball training.	☐	☐	☐	☐	☐

4. Outcome Expectations

Question	Completely Disagree	Disagree	Neutral	Agree	Completely Agree
1. Working hard in basketball training will be rewarded by parents.	☐	☐	☐	☐	☐
2. Participating in basketball training will get better evaluations from parents and people around me.	☐	☐	☐	☐	☐
3. Participating in basketball training will improve my athletic ability.	☐	☐	☐	☐	☐
4. I will have more fun participating in basketball training.	☐	☐	☐	☐	☐
5. Participating in basketball training will enhance the friendship between me and my teammates.	☐	☐	☐	☐	☐
6. I might get injured during basketball training.	☐	☐	☐	☐	☐
7. Attending basketball training may affect	☐	☐	☐	☐	☐

Question	Completely Disagree	Disagree	Neutral	Agree	Completely Agree
my academic performance.					
8. Attending basketball training may take up a lot of my recreational time.	☐	☐	☐	☐	☐

5. Participation Behavior Intention

Question	Completely Disagree	Disagree	Neutral	Agree	Completely Agree
1. I will continue to participate in basketball training.	☐	☐	☐	☐	☐
2. I hope to further participate in other basketball training activities.	☐	☐	☐	☐	☐
3. I will recommend basketball training to my friends.	☐	☐	☐	☐	☐
4. I will not complain to my friends about unhappy things in basketball training.	☐	☐	☐	☐	☐

Thank you for completing this questionnaire! Your responses are greatly appreciated.

APPENDIX B

Ethic Certificate

MAHASARAKHAM UNIVERSITY ETHICS COMMITTEE FOR RESEARCH INVOLVING HUMAN SUBJECTS

Certificate of Approval

Approval number: 121-071/2024

Title : The Influencing Factors of Behavior Intention of Teenagers Participating in Basketball Training-Based on the Perspective of Social Cognition.

Principal Investigator : Jin Zhao
Responsible Department : Faculty of Education
Research site : Nanning city, Guangxi Zhuang Autonomous Region, China.

Review Method : Expedited Review

Date of Manufacture : 28 February 2024 **expire : 27 February 2025**

This research application has been reviewed and approved by the Ethics Committee for Research Involving Human Subjects, Mahasarakham University, Thailand. Approval is dependent on local ethical approval having been received. Any subsequent changes to the consent form must be re-submitted to the Committee.

Ratree S.

(Asst. Prof. Ratree Sawangjit)
Chairman

Approval is granted subject to the following conditions: (see back of this Certificate)

671071

ECMSU01-07.10 English 2023

Informed consent form for research from volunteers' parent
(For volunteers about 12-14 years old)

I am a teenager's (father/mother) : .....

teenager's name: .....

teenager's date of birth: .....

House number: ..... Village No.: .....

Sub-district: ..... District: ..... province: .....

Convenient phone: .....

Read the explanation / listen to the explanation from Mr. Jin Zhao about volunteering in the research project on "The Influencing Factors of Behavior Intention of Teenagers Participating in Basketball Training-Based on the Perspective of Social Cognition",

the explanatory text consists of Full details about the purpose of the research, details of the research. That I have to do and be treated, the benefits that I may gain from the research and the risks that may arise from participating in the study. Including guidelines for questions that may arise throughout. It has also received an explanation and an answer to any questions from the research project leader.

As well as the testimony from the researcher that will keep my information confidential. In addition, not anonymously or private information individually to the public. The results of the research will be presented in the form of an overview that is a summary of the research results for academic purposes only. Your child will not be affected in any way by this study.

"In participating as a volunteer of this research project I join voluntarily." And I can withdraw from this study at any time. If I wish which will not have any effect and will not lose any rights in study or work that I will receive in the future.

sign..... Volunteers' parent
(.....)
Date.....

sign..... witness
(.....)
Date.....

sign..... researcher
(Mr.Jin Zhao)
Date.....

data leakage. We will only use comprehensive information and data for reporting and will not disclose personal information of volunteers. You will not be paid or charged for the study.

If you have questions about the research Please feel free to contact us at (JIn Zhao-Health and Sport Science. Educational Faculty, Mahasarakham University, Phone: +8618260938424). If you were not treated as described or want to know your rights while participating in this study, You can contact at "Human Research Ethics Committee Mahasarakham University Division of Research and Academic Service Promotion Mahasarakham University "Tel. 043-754416 Internal number 1755

Sincerely

.....

(Jin Zhao)

Researcher

The Youth Fit 4 Life treatment

Test time

The Youth Fit 4 Life treatment was administered 4 days/week,with programming used on the fifth day of the week left to thecounsellors' discretion. Counsellors administering the Youth Fit4 Life protocol completed a 6-h training that was supported by amanual detailing each structured lesson (4 lessons/week x 24weeks = 96 lessons total).

(1) A warm-up of light movement and stretching (5 min)

Timing: We start with a warmup and then we finish our training session with a cool-down and some stretching.

Important difference: warm-ups should always be dynamic, always use active exercises (e.g., hops, rotations, chest expansions) to get our bodies ready. We need to get the blood flowing, especially during colder seasons. Our bodies benefit from stretches after we have already worked out - our muscles are more susceptible to them allowing us to stretch further and hold the stretches longer.

Fiure 1 A warm-up of light movement and stretching

(2) moderate-to-vigourous physical activities via an assortment of structured tag,Basketball l and mobility games and tasks (30 min)

Sessions will vary between 30-60 minutes. Not all games in each session are required to be delivered. The number of games will depend on factors such as session time, ability level and engagement of participants. Coaches should deliver the number of games in each session they feel appropriate to develop the key physical literacy elements in this category.

If all games are not completed in a session, the coach can use their discretion to start the next session with the remaining games and/or begin with the new games for that session. An alternate game has been provided in each session for coaches to maintain the engagement of participants if required.

MOVEMENT GAMES - FUNDAMENTAL MOVEMENT SKILLS

	1	2	3	4	5	6	7	8
Review, Outline & Warm Up (5-10 mins) Start with a brief review of last week, outline today's session and play and a familiar game	Names	Hoop Stretch	Balance Energisers (Here, There, Nowhere)	Balance Energisers (Here, There, Nowhere)	Back to Back Pass	Shuttle Ball	Bat Tapping	Participant choice
Get into It (20-45 mins) Use TREE to modify games to suit the ability level (page 2 of activity card)	Shuttle Ball	Balance Energisers (Traffic Lights)	Rob The Nest	Hoop Stretch	Catching Challenge	Soctopus	In the Zone	Participant choice and/or Play a modified game from a Movement (Fundamental Movement Skills) category sport e.g. Athletics, Gymnastics
	Speed Gate	Frogs & Lily pads	Balance Tag Games (Frost & Thaw)	Body Balances	L-o-n-g Pass	Target Relay	Bucket and Hoop	
	Flip It	Musical Games	Musical Games	Body Obstacle Course	Shuttle Ball	Speed Gate	Over the Pit	
Alternate Game	Rob the Nest	Body Balances	Body Balances	Team Alphabet	Run the Circle	Hit 4 and Go	Hit 4 and Go	Play favourite game
Finish Up & Review (5 mins) Ask participants 2-3 questions	What game/s did you like playing today? What game/s did not you like playing today? What are 2 things you learnt today? How can you practice your new skills at home? Would you like to learn more of next week?							

Fiure 2 MOVEMENT GAMES - FUNDAMENTAL MOVEMENT SKILLS

(3) Self-management/self-regulatory skills or nutrition education wheretopics such as productive self-talk,recruiting social supports andthe goal setting-progress feedback process were taught andreviewed, and information on healthy nutrition and hydration was supported by brief lectures and posters (10 min on alternate days).

I will prepare information on healthy nutrition and hydration in each class supported by short lectures and posters，for example Figure3,4,5

ECMSU01-09.03 Update 2021

Daily dietary guidelines for children 12-13 years

Teenagers need a **wide variety of healthy foods** from the 5 food groups. How much food teenagers need depends on body size and activity levels.

Teenagers aged 12-13 years should aim for 2 serves legumes

Teens need plenty of **water** – the cheapest, healthiest and most thirst-quenching drink. They need more water on hot or humid days, or if they sweat a lot. Avoid soft drinks, fruit juices, flavoured milk or water, sports drinks, energy drinks, tea and coffee. Children under 18 shouldn't drink alcohol.

Fiure 3 Daily dietary guidelines for children 12-13 years

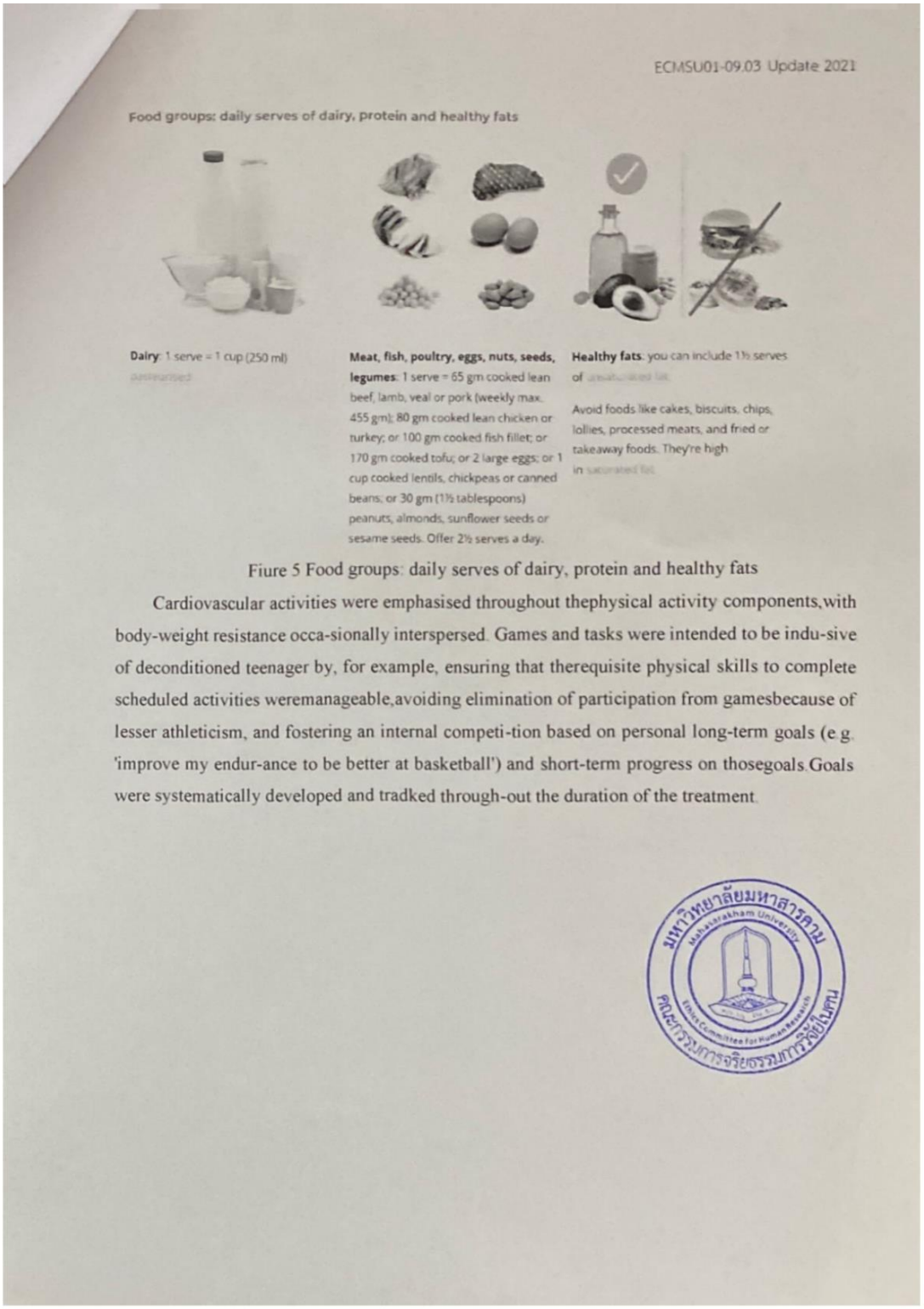
Food groups: daily serves of fruit, vegetables, cereals and grains

Fruit: 1 serve = 1 medium apple, banana, orange or pear; or 2 small plums, kiwi fruits or apricots; or 1 cup diced or canned fruit (no added sugar). Offer 2 serves a day.

Vegetables: 1 serve = ½ a medium potato (or sweet potato or corn); or ½ cup cooked vegies (like broccoli, spinach, carrots, pumpkin); or 1 cup green leafy or raw salad vegies; or ½ cup cooked, dried or canned beans, legumes or lentils. Offer 5-5½ serves a day.

Cereal and grains: 1 serve = 1 slice of bread; or ½ cup cooked rice, pasta, noodles, quinoa or polenta; or ½ cup porridge; or ⅔ cup wheat cereal flakes; or ¼ cup muesli; or 1 crumpet or small English muffin. Wholegrain

Fiure 4 Food groups: daily serves of fruit, vegetables, cereals and grains



Fiure 5 Food groups: daily serves of dairy, protein and healthy fats

Cardiovascular activities were emphasised throughout thephysical activity components,with body-weight resistance occa-sionally interspersed. Games and tasks were intended to be indu-sive of deconditioned teenager by, for example, ensuring that therequisite physical skills to complete scheduled activities weremanageable,avoiding elimination of participation from gamesbecause of lesser athleticism, and fostering an internal competi-tion based on personal long-term goals (e.g. 'improve my endur-ance to be better at basketball') and short-term progress on thosegoals.Goals were systematically developed and tradked through-out the duration of the treatment.

Inclusion criteria and Exclusion criteria

1. Inclusion criteria

Inclusion criteria were:

(1) In good health;

(2) With the informed consent of the principal of their Middle school to participate in this study, and obtain written informed consent;

(3) With the consent of their parents or guardians to participate in this study, and obtain written informed consent.

2.Exclusion criteria

Exclusion criteria were:

(1) Moderate and severe cognitive impairment (confirmed by teachers and guardians);

(2) There are major medical or physical conditions that affect their participation in physical exercise;

(3) Motor development is delayed.

Notes on the The Youth Fit 4 Life treatment

1. Quality supervision of fundamental movement skills test assessment

(1) The researchers and physical education teachers are solely responsible for the quality and supervision of the fundamental movement skills test results.

(2) Before conducting the test, the researcher conducted operational training for the staff to familiarize them with the site, equipment, test methods, test action specifications, data entry, etc.

(3) Carefully review the inclusion and exclusion criteria for trial subjects before the trial.

(4) Arrange the test team leader to inspect, guide and supervise to ensure that the assessment results are accurate and error-free.

(5) After the test, organize a summary seminar for testers to check whether there are any problems such as missing data, data entry, and data anomalies in the evaluation results.

2. Prevention and treatment of injuries during the assessment of fundamental movement skills test

(1) Organize warm-up activities for teenager before the test so that muscles, joints, brain and other organs can reach the best physical condition for taking the test.

(2) The testers introduce the testing content, testing methods, precautions, safety protection and other knowledge, and correctly demonstrate the testing process.

(3) Before the test, all testers will inspect the site and equipment to eliminate potential safety hazards and eliminate factors such as slippery sites and unsafe equipment.

(4) Division of labor clearly defines the division of labor among testers, ensures professional and standardized testing process, arranges other testers to work together to maintain on-site order, protects teenager during the testing process, and tracks the entire process to prevent teenager from falling during testing.

(5) Prepare emergency supplies in advance, including elastic bandages, ice, medicines, etc., and arrange 1-2 medical staff at the test site. Train testing personnel in advance on the treatment of sports injuries, including applying ice, bandaging, raising the injured limb, using drugs, calling first aid, etc., and do a good job in preventing injuries that may occur during basic sports fundamental movement skills tests.

Questionnaire on influencing factors of youth basketball participation intention

Dear classmates:

Thank you very much for your participation in the research for your graduation thesis. This form is simply to survey how supportive your parents, friends, and teachers are of you, your reasons for participating in basketball training, and your willingness to participate in basketball training. This survey is an anonymous survey; you do not need to fill in your name on the form. All information will only be used for your own scientific research. The survey data will be strictly confidential. The research results will only be comprehensive data and will not involve any of your personal options. Please put "√" on the appropriate ones or fill them in directly. Thank you again for your participation!

First part:

1. your gender

□ male □ female

2. your age

□: 12 years old and below □ 12-15 years old □ 15 years old and above

3. The nature of the school you are currently attending

□ Public schools □ Private schools

4. your education level

Elementary School □ Junior High School □ High School

5. The time you participated in basketball training was

□ 1 year and below □ 1-2 years □ 2-3 years

□ 3-4 years □ 4-5 years □ 5 years or more

6. How many hours do you attend basketball training each week?

□ 4 hours and less □ 4-8 hours □ 8-12 hours

□ more than 12 hours

Second part:

1. Social support

Question	Completely Disagree	Disagree	Neutral	Agree	Completely Agree
1.My parents would go to basketball practice with me					
2.My parents will take me to basketball training places or places where I can contact basketball					
3.My parents would watch me play basketball					
4.My parents would tell me that I was doing well in basketball					
5.I will encourage my friends to participate in basketball					
6.My friends will encourage me to					

participate in basketball.					
7.My friends will participate in basketball activities with me					
8.My friends will tell me that I am better at basketball.					

2.Situation

Question	Completely Disagree	Disagree	Neutral	Agree	Completely Agree
1.The court equipment at the training location can meet my basketball training needs.					
2.I can conveniently use the court equipment at the training location for basketball training.					
3.The format and content of the training courses are very attractive to me					
4.The training courses played a positive role in the formation of my interest in basketball.					
5.Training locations often organize participation in various competitions					
6.My training coaches work seriously and responsibly					
7.My training coaches have professional basketball skills and teaching levels					
8.I like my training coaches very much Most of the teammates in Team					
9.Enjoy participating in basketball training very much					
10.The basketball atmosphere in the team is strong					

3.Self-efficacy

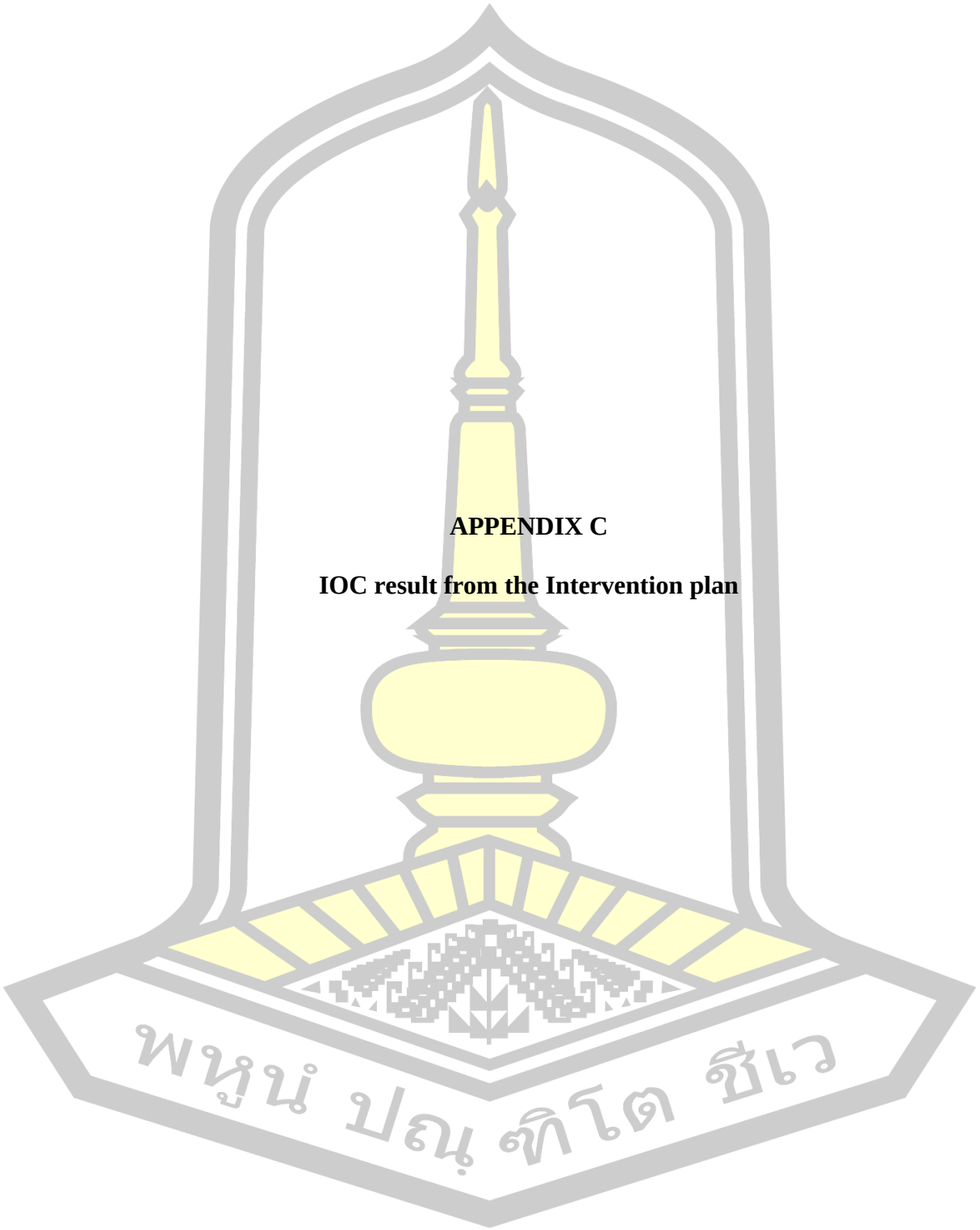
Question	Completely Disagree	Disagree	Neutral	Agree	Completely Agree
1.I can ask my parents or coaches to take me to basketball training and games.					
2.I can ask my best friend to accompany me to basketball training.					
3.I can let my parents attend basketball canyutraining together.					
4.I think I have the athleticism required for basketball					
5.Even if I feel tired from studying, I will still participate in basketball training					
6.No matter what the weather is like, I will still participate in basketball training					
7.No matter what difficulties arise in basketball training, I am confident that I can solve them					
8.Even if I have to stay at home, I still want to participate in basketball training					
9.Even though I have homework to complete, I still want to participate in basketball training					
10.When I have nothing to do, I would like to participate in basketball training					
11.Even if my friends want to participate in other activities with me, I will still participate in basketball training					

4.Outcome expectation

Question	Completely Disagree	Disagree	Neutral	Agree	Completely Agree
1.Working hard in basketball training will be rewarded by parents					
2.Participating in basketball training will get better evaluation from parents and people around you.					
3.Participating in basketball training will improve my athletic ability					
4.I will have more fun participating in basketball training					
5.Participating in basketball training will enhance the friendship between me and my teammates.					
6.I might get injured during basketball training					
7.Attending basketball training may affect my academic performance					
8.Attending basketball training may take up a lot of my recreational time					

5.Participation behavior intention

Question	Completely Disagree	Disagree	Neutral	Agree	Completely Agree
1.Working hard in basketball training will be rewarded by parents					
2.Participating in basketball training will get better evaluation from parents and people around you.					
3.Participating in basketball training will improve my athletic ability					
4.I will have more fun participating in basketball training					



APPENDIX C

IOC result from the Intervention plan

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Center for International Affairs

MHESRI No. 0605.5 (2) / CL1067 Date: March 15, 2024

To: **Prof.Shaoqiang Mo**
Nanning Normal University
Prof. Wencong Huang
Guangxi College for Preschool Education
Pro.Xiaojun Liu
Guangxi College for Preschool Education
Prof. Zhenlei Fu
Nanning Normal University
Prof. Zhiqing Li
Guangxi University

Subject: Expert Invitation

Our student, **Mr.Jin Zhao, student ID 64010564021,** majoring in the Exercise and Sports Science is currently undertaking a research project titled **"The Influencing Factors of Behavior Intention of Teenagers Participating in Basketball Training-Based on the Perspective of Social Cognition"** under the guidance of Dr.Poony Sumranpat Brady.

To ensure the successful execution and the highest quality of this research project, we are seeking your valuable expertise and experience. Therefore, I am sending a formal invitation to you to serve as the expert reviewer for the research instrument designed for this thesis project.

Your participation in this academic endeavor is highly valued and appreciated. Should you require any further information or have questions regarding this invitation, please do not hesitate to contact us by email.

Yours sincerely,

(Assoc. Prof. Chowwalit Chookhampaeng)
Dean, Faculty of Education,
Mahasarakham University

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Center for International Affairs

IOC results from the first round of Influencing factors of behavioral intention of youth basketball participation

No.	Questions	Exp1	Exp2	Exp3	Exp4	Exp5	Total	Result	
Q1	My parents often joined me in playing basketball.	0	1	1	1	1	4	0.8	Pass
Q2	My parents took me to basketball training places or contacted basketball venues.	1	1	1	0	1	4	0.8	Pass
Q3	My parents watched me play basketball.	0	1	1	1	1	4	0.8	Pass
Q4	My parents frequently attended my basketball games to watch me play.	1	1	1	1	0	4	0.8	Pass
Q5	I encourage my friends to participate in basketball.	1	1	1	1	0	4	0.8	Pass
Q6	My friends encouraged me to participate in basketball.	0	1	1	1	1	4	0.8	Pass
Q7	My friends participated in basketball activities with me.	1	1	0	1	1	4	0.8	Pass
Q8	My friends tell me that I am good at basketball.	1	1	0	1	1	4	0.8	Pass
Q9	The training place's facilities meet my basketball training needs.	0	1	1	1	1	4	0.8	Pass
Q10	I can conveniently use the training place's facilities for basketball training.	1	1	0	1	1	4	0.8	Pass
Q11	The format and content of the training courses are very attractive to me.	1	1	1	1	0	4	0.8	Pass
Q12	The training courses have had a positive effect on developing my interest in basketball.	1	1	1	0	1	4	0.8	Pass
Q13	The training location frequently organizes participation in various competitions.	1	1	1	0	1	4	0.8	Pass
Q14	My coaches work seriously and responsibly.	1	1	0	1	1	4	0.8	Pass
Q15	My coaches have professional basketball skills and teaching levels.	1	1	0	1	1	4	0.8	Pass
Q16	I like my coaches very much.	1	1	1	1	1	5	1.0	Pass
Q17	Most of my teammates like to participate in basketball training.	1	1	1	1	1	5	1.0	Pass
Q18	The basketball atmosphere in the team is strong.	1	1	1	1	1	5	1.0	Pass
Q19	I can ask my parents or coaches to take me to basketball training and games.	1	1	1	1	1	5	1.0	Pass
Q20	I can ask my best friend to accompany me to basketball training.	1	1	1	1	1	5	1.0	Pass
Q21	I can ask my parents to participate in basketball training with me.	1	1	1	1	1	5	1.0	Pass
Q22	I think I have the level required for basketball.	1	1	1	1	1	5	1.0	Pass
Q23	Even if studying makes me tired, I will still participate in basketball training.	1	1	1	1	1	5	1.0	Pass
Q24	No matter the weather, I will still participate in basketball training.	1	1	1	1	1	5	1.0	Pass
Q25	I am confident in solving any difficulties that arise in basketball training.	1	1	1	1	1	5	1.0	Pass
Q26	I want to participate in basketball training even if I have to stay at home.	1	1	1	1	1	5	1.0	Pass
Q27	I want to participate in basketball training even if I have homework to do.	1	1	1	1	1	5	1.0	Pass
Q28	I really want to participate in basketball training when I have nothing to do.	1	1	1	1	1	5	1.0	Pass
Q29	I will participate in basketball training even if my friends want to do other activities.	1	1	1	1	1	5	1.0	Pass
Q30	Hard work in basketball training will be rewarded by my parents.	1	1	1	1	1	5	1.0	Pass
Q31	Participating in basketball training will earn better evaluations from my parents and people around me.	1	1	1	1	1	5	1.0	Pass
Q32	Participating in basketball training will improve my athletic ability.	1	1	0	1	1	4	0.8	Pass
Q33	I will get more fun from participating in basketball training.	1	1	1	0	1	4	0.8	Pass
Q34	Participating in basketball training will promote friendship with my teammates.	1	1	0	1	1	4	0.8	Pass
Q35	I may get injured during basketball training.	1	1	1	1	0	4	0.8	Pass
Q36	Participating in basketball training may affect my academic performance.	0	1	1	1	1	4	0.8	Pass
Q37	Participating in basketball training could significantly reduce the amount of my free time	0	0	1	1	1	3	0.6	Pass
Q38	I will continue to participate in basketball training.	1	0	1	1	1	4	0.8	Pass
Q39	I hope to further participate in other basketball training activities.	1	1	1	1	1	5	1.0	Pass
Q40	I will recommend basketball training to my friends.	1	1	1	0	1	4	0.8	Pass
Q41	I will not complain to my friends about unhappy things in basketball training.	1	1	1	0	1	4	0.8	Pass
								0.878	Pass

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Center for International Affairs

MHESRI No. 0605.5 (2) / CL1067 Date: May 15, 2024

To: **Prof.Shaoqiang Mo**
Nanning Normal University
Prof. Wencong Huang
Guangxi College for Preschool Education
Pro.Xiaojun Liu
Guangxi College for Preschool Education
Prof. Zhenlei Fu
Nanning Normal University
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Yours sincerely,

(Assoc. Prof. Chowwalit Chookhampaeng)
Dean, Faculty of Education,
Mahasarakham University

Plan：12 weeks training for 12-14 year old basketball participants intervention

Interviewee Information ：

Name	Area	University	Professional Title
Shaoqiang Mo	Sport Management	Nanning Normal University	Professor Dean
Wencong Huang	Sport Psychology; Physical Education	Guangxi College for Preschool Education	Professor Dean
Xiaojun Liu	Sport Psychology; Physical Education	Guangxi College for Preschool Education	Professor Dean
Zhenlei Fu	Physical Education and Sports Training	Nanning Normal University	Professor
Zhiqing Li	Physical Education and Sports Training	Guangxi University	Professor

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Dear experts:

My name is Jin Zhao and I am a doctoral student at Mahasarakham University. I am currently conducting research on The Influencing Factors of Behavior Intention of Teenagers Participating in Basketball Training-Based on the Perspective of Social Cognition.The main research subjects are 12-14 year old basketball participants in Guangxi Basketball club.I guarantee that all data collected in this survey will be used for research purposes only. Thank you very much for helping me evaluate the research proposal. I designed a one-group controlled experiment. Men and women were divided into groups for the intervention experiment. All other conditions will remain the same as far as possible.

The Influencing Factors of Behavior Intention of Teenagers Participating in Basketball Training-Based on the Perspective of Social Cognition

Research project name：

Research project name: The Influencing Factors of Behavior Intention of Teenagers Participating in Basketball Training-Based on the Perspective of Social Cognition

Instructions: Please use the corresponding column to study the training for 12-14 year old basketball participants interventions to see if the experimental design is appropriate, and propose evaluation criteria.

	Detailed List
+1	Indicates the most suitable
0	Expresses moderate
-1	Indicates a lower degree of suitability

Definition of Terms
Table 1

Order	Evaluation items	Project Description	Expert1	Expert2	Expert3	Expert4	Expert5	Scores	Expert rating
1	Training environment	Basketball clubs in Nanning, Guangxi have indoor courts	1	1	1	1	1	5	
2	Training duration	12 weeks	1	1	1	1	1	5	
3	Training frequency	Six days a week	1	1	1	1	1	5	
4	Training duration	90 minutes/each time	1	1	1	1	1	5	
5	Intervention plan	Targeted intervention training for male and female	1	1	1	1	1	5	

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12-Week Basketball Training Intervention Plan

Table 2 Detailed Training Content and Goals

Weeks 1-4: Basic Skills and Team Cooperation	
Male Participants:	
Basic Skills:	1 hour of dribbling, passing, and shooting training daily.
Goals:	1.Improve basic basketball skills.
	2.Enhance self-efficacy (confidence and adaptability).
	3.Promote positive expectations for basketball training outcomes.
Team Cooperation:	15 minutes of team games (e.g., team competitions, peer evaluations) daily to enhance interaction and cooperation among players.
Goals:	1.Strengthen team cohesion and cooperation.
	2.Increase social support (encouragement and participation from friends).

	3.Improve adaptability to the training environment.
Female Participants:	
Basic Skills:	1 hour of dribbling, passing, and shooting training daily.
Goals:	1.Increase confidence.
	2.Improve adaptability to the training environment.
	3.Promote positive expectations for basketball training outcomes.
Self-Efficacy:	Set personal goals and record progress after completing training tasks daily to improve self-efficacy.
Goals:	1.Increase confidence.
	2.Improve training enthusiasm.
	3.Promote positive expectations for basketball training outcomes.
Positive Feedback:	Coaches provide positive feedback to help players build confidence..
Goals:	1.Increase social support (encouragement from parents and coaches).

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	2.Enhance self-efficacy (confidence and adaptability).
	3.Promote positive expectations for training outcomes.

Weeks 5-8: Situational Simulation and Personal Skill Enhancement	
Male Participants:	
Situational Simulation:	1.5 hours of simulation game training to improve practical skills.
Goals:	1.Improve responsiveness and skill levels in actual games.
	2.Enhance confidence and adaptability.
	3.Improve adaptability to the training environment.
Positive Feedback:	Coaches provide positive feedback after training to help players build confidence and adaptability.
Goals:	1.Enhance self-efficacy (confidence and adaptability).
	2.Improve training enthusiasm.
	3.Promote positive expectations for training outcomes.
Female Participants:	

Personal Skills:	1 hour of specific skill enhancement training daily to strengthen personal abilities.
Goals:	1.Improve specific basketball skills. 2.Enhance self-efficacy (confidence and adaptability). 3.Promote positive expectations for training outcomes.
Success Story Sharing:	
Time:	Every Friday after training, lasting 30 minutes.
Participants	One successful female basketball player each time.selected by the coach, shares her experiences and success stories and answers players' questions.
Goals:	1.Increase confidence and motivation. 2.Promote positive expectations for training outcomes. 3.Enhance social support (encouragement from coaches and teammates).
Achievement Display:	Monthly achievement display activities to showcase training results.
Goals:	1.Increase sense of achievement and future expectations.

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	2.Enhance self-efficacy (confidence and adaptability). 3.Promote positive expectations for basketball training outcomes.

Weeks 9-12: Comprehensive Training and Game Preparation	
Male Participants:	
Comprehensive Training:	1.5 hours of comprehensive skills training daily, including physical training and specific skill enhancement.
Goals:	1.Improve overall basketball skills 2.Enhance self-efficacy (confidence and adaptability). 3.Promote positive expectations for training outcomes.
Simulation Games:	Weekly simulation games on Saturdays to enhance practical experience and team cooperation.
Format:	Full-court games.
Goals:	1.Improve responsiveness and skill levels in actual games.

	2.Strengthen team cohesion and cooperation. 3.Increase social support (encouragement and participation from friends).
Female Participants:	
Comprehensive Training:	1.5 hours of comprehensive skills training daily, including physical training and specific skill enhancement.
Goals:	1.Improve overall basketball skills. 2.Enhance self-efficacy (confidence and adaptability). 3.Promote positive expectations for training outcomes.
Simulation Games:	Weekly simulation games on Saturdays to enhance practical experience and team cooperation.
Format:	Full-court games.
Goals:	1.Improve responsiveness and skill levels in actual games. 2.Strengthen team cohesion and cooperation. 3.Increase social support (encouragement and participation from friends).

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Achievement Display:	Continue monthly achievement display activities to enhance players' sense of achievement and future expectations.
Goals:	1.Increase sense of achievement and future expectations. 2.Enhance self-efficacy (confidence and adaptability). 3.Promote positive expectations for basketball training outcomes.

Factor Interventions Interventions

Table 3 Factor Interventions for male

Week	Intervention Item	Activity	Time	Content
Weeks 1-4	Social Support (Q3)	Family Day Activities	3rd week of the 1st and 2nd months, Wednesday evening, 6:00-9:00 PM	Parent-child basketball games, family interaction with the coach, and activities for parents to observe and interact.

Weeks 1-4	Situation (Q16)	Coach Training	2nd week of the 1st and 2nd months, Friday evening, 6:00-9:00 PM	Provide training and communication skills courses for coaches.
Weeks 1-12	Self-Efficacy (Q25)	Psychological Counseling	After training every Tuesday	Role Model Selection, Positive Feedback, Support Methods.
Weeks 1-12	Outcome Expectations (Q36)	Time Management Training	1st week of each month, Thursday evening, 6:00-7:30 PM	Provide time management and study skills training.

Weeks 1-4: Social Support (Q3) - Family Day Activities

Time: 3rd week of the 1st and 2nd months, Wednesday evening, 6:00-9:00 PM

Details:

Parent-Child Basketball Games: Organize basketball games that involve both parents and children, aiming to enhance the parent-child relationship through shared physical activity. These games emphasize participation rather than competition, encouraging families to actively support their children's involvement in sports.

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Family-Coach Interaction: Arrange sessions where parents can interact directly with coaches, discussing their child's progress, the importance of social support in sports, and how to help maintain a positive attitude toward basketball. Coaches will also share insights into training methods and goals.

Observation and Interaction Activities: Encourage parents to observe training sessions and participate in light interactive activities, helping them understand what their children are learning. This might include mini-lectures or interactive demonstrations led by coaches, aimed at teaching parents how to support their children's sports journey at home.

Weeks 1-4: Situation (Q16) - Coach Training

Time: 2nd week of the 1st and 2nd months, Friday evening, 6:00-9:00 PM

Details:

Coach Training Sessions: Provide specialized training for coaches, focusing on creating a positive and supportive environment for young athletes. The training includes strategies for effective communication, conflict resolution, and motivation techniques.

Communication Skills Courses: Help coaches develop skills for effective communication with athletes and their families, focusing on understanding the psychological and emotional needs of adolescent athletes, ensuring that coaches can provide the necessary support to help them succeed both on and off the field.

Practical Workshops: Coaches engage in role-playing and scenario-based exercises to practice and refine their communication and coaching skills through hands-on practical methods.

Weeks 1-12: Self-Efficacy (Q25) - Psychological Counseling

Time: After training every Tuesday

Details:

Role Model Selection: Introduce young athletes to role models who have overcome challenges and achieved success in sports. These role models can share their stories, providing inspiration and demonstrating that perseverance and confidence can lead to success.

Positive Feedback: Coaches regularly provide personalized positive feedback to each athlete, reinforcing their confidence in their abilities, encouraging them to set realistic goals, and helping them build a positive self-image.

Support Methods: Coaches teach athletes strategies for coping with setbacks, stress, and anxiety, including relaxation techniques, visualization exercises, and other psychological tools designed to enhance mental resilience and self-efficacy.

Weeks 1-12: Outcome Expectations (Q36) - Time Management Training

Time: 1st week of each month, Thursday evening, 6:00-7:30 PM

Details:

Time Management Workshops: Provide practical training sessions to help athletes learn how to manage their time effectively, including setting priorities, creating schedules, and balancing the responsibilities of training and academics.

Study Skills Training: Offer guidance on effective study techniques to help athletes excel academically while maintaining their training schedules. This may include note-taking techniques, effective reading strategies, and memory aids.

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Interactive Activities: Through real-life scenario simulations, athletes make decisions on how to allocate time between sports, studies, and leisure. This hands-on approach helps them understand the importance of time management in achieving their goals.

Table 4 Foctor Interventions for female

Week	Intervention Item	Activity	Time	Content
Weeks 1-4	Situation (Q16)	Coach Training	2nd week of the 1st and 2nd months, Friday evening, 6:00-9:00 PM	Provide training and communication skills courses for coaches.
Weeks 1-12	Self-Efficacy (Q25)	Confidence-Building Courses	After training every Tuesday	Group discussions, counseling sessions.
Weeks 5-8	Outcome Expectations (Q30)	Reward System	1st week of each month, Thursday evening, 6:00-7:30 PM	Implement a reward program with parental involvement.

Weeks 1-4: Situation (Q16) - Coach Training

Time: 2nd week of the 1st and 2nd months, Friday evening, 6:00-9:00 PM

Details:

Coach Training Sessions: Conduct specialized training for coaches to focus on creating a positive and supportive environment tailored to female athletes. This includes understanding the unique challenges faced by female athletes, such as societal expectations and gender norms.

Communication Skills Courses: Equip coaches with effective communication techniques to better support and motivate female athletes. These courses emphasize empathetic listening, providing constructive feedback, and fostering an environment where athletes feel valued and understood.

Interactive Workshops: Coaches participate in role-playing scenarios and case studies that reflect common challenges faced by female athletes, such as balancing sports with academic pressures. These workshops help coaches practice and refine their skills in real-life situations.

Weeks 1-12: Self-Efficacy (Q25) - Confidence-Building Courses

Time: After training every Tuesday

Details:

Group Discussions: Organize weekly group discussions where female athletes can share their experiences, challenges, and successes. These discussions aim to build a supportive community where athletes can learn from one another and boost each other's confidence.

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MAHASARAKHAM UNIVERSITY

Counseling Sessions: Provide regular counseling sessions focusing on self-efficacy, where athletes can work on building their confidence and overcoming any self-doubt. These sessions are led by coaches or psychological counselors who are trained to address the specific needs of female athletes.

Visualization Techniques: Introduce visualization and mental rehearsal techniques to help athletes imagine success in their sports endeavors, thereby increasing their confidence and readiness for competition.

Weeks 5-8: Outcome Expectations (Q30) - Reward System

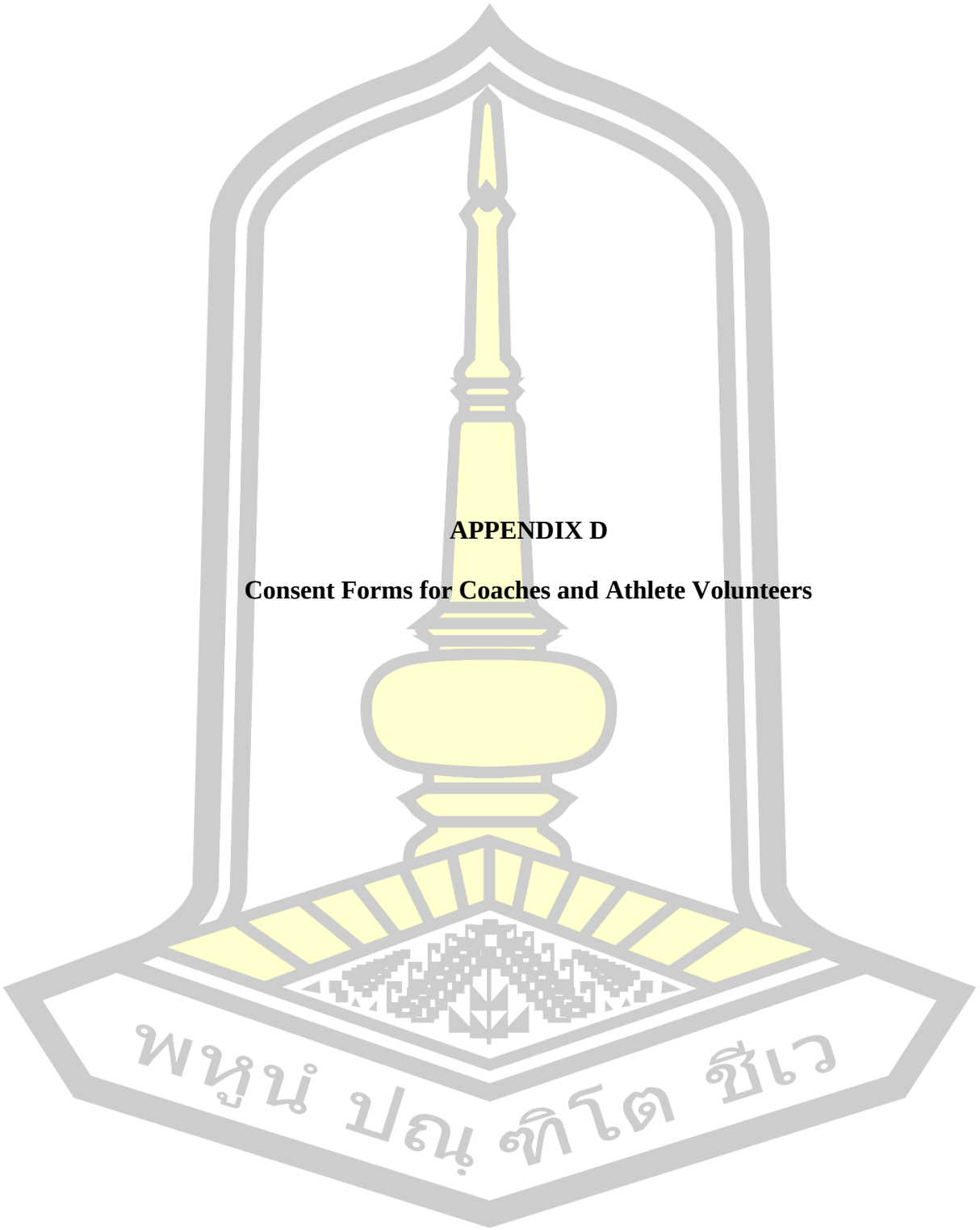
Time: 1st week of each month, Thursday evening, 6:00-7:30 PM

Details:

Reward Program Implementation: Develop a reward system that recognizes both effort and achievement in training and competition. This could include certificates, medals, or other tangible rewards that athletes can earn by reaching specific milestones.

Parental Involvement: Encourage parents to participate in the reward system by recognizing their children's achievements at home and during family events. This involvement helps reinforce the athletes' commitment and encourages continued participation in sports.

Motivational Talks: Invite successful female athletes or coaches to speak with the team about the importance of setting goals and working toward them. These talks can help athletes understand the long-term benefits of persistence and hard work, which the reward system is designed to promote.



APPENDIX D

Consent Forms for Coaches and Athlete Volunteers

ECMSU01-09.03 Update 2021

Clarification documents for the volunteers who Experiment

Dear all Subject

Because I (Jin Zhao, PhD candidate, Health and Sport Science. Educational Faculty, Mahasarakham University) conducting research on "The Influencing Factors of Behavior Intention of Teenagers Participating in Basketball Training-Based on the Perspective of Social Cognition". You may not directly benefit from participating in this research project. However, the findings of this project could support the training decisions of your coaching team and help increase the enthusiasm of you and your teammates in participating in the training sessions.

After being recommended by your coach and interviewed by the researcher, you are eligible to be a volunteer for this study. If you decide to participate in this study, you will be asked to provide your basic personal information. If you feel uncomfortable or uncomfortable with certain questions, you have the right not to answer them.As a participant in this study, you will engage in a 12-week basketball training program that includes basic skills training (dribbling, passing, shooting) and team interaction activities from Monday to Friday, comprehensive training and simulation games on Saturdays, and rest and recovery on Sundays. Additionally, you will participate in family day events, coach training sessions, psychological counseling, and time management training as part of the intervention. Your participation involves completing questionnaires on your motivations, expectations, and social support related to basketball training, attending scheduled training sessions and activities, and engaging in group discussions and feedback sessions. The study will be conducted over a 12-week period with activities scheduled each week.

The physical activities involved in this research may lead to muscle soreness, fatigue, or minor injuries. However, all activities will be supervised by professionals who will closely monitor your health and safety. If you feel uncomfortable or find the physical demands exceed your comfort level, you may withdraw from the study at any time. By participating in this study, you may enhance your basketball skills, boost your self-confidence, and develop better time management and teamwork skills. Additionally, your participation could provide valuable insights for improving future basketball training programs for teenagers. We take your privacy very seriously; all personal data collected during the study will be kept strictly confidential, securely stored, and only accessible to the research team. The study results will be presented in aggregate form, ensuring that individual participants cannot be identified. Personal data will be destroyed once the study is completed. Please note that your participation in this study is entirely voluntary, and you may withdraw at any time without penalty or loss of benefits.

If you have questions about the research Please feel free to contact us at (JIn Zhao- Health and Sport Science. Educational Faculty, Mahasarakham University, Phone: +8618260938424). If you were not treated as described or want to know your rights while participating in this study, you can contact at "Human Research Ethics Committee Mahasarakham University Division of Research and Academic Service Promotion Mahasarakham University "Tel. 043-754416 Internal number 1755.

Sincerely

Jin Zhao

Researcher

ECMSU01-07.10 nglsh 2023

Study informed consent from the volunteer head coach

I (Mr.) ..Chaogao.....Surname ..Liang....., aged .....1992..... year,
House number..... Village No..... Sub-district.Xinning., District.Chang. gang
Province ..Guangxi.
Convenient phone number ...18776145577

Read the explanation/listened to the explanation from Mr.Jin Zhao about volunteering in the research project titled "The Influencing Factors of Behavior Intention of Teenagers Participating in Basketball Training-Based on the Perspective of Social Cognition." The explanatory text consists of full details about the purpose of the research and the details of the study. I agree with the value of the study and am aware of the benefits to be gained and the risks that may arise from participating in the study. This includes guidelines for potential problems. Explanations and answers to any questions from the head of the research project were also received.

The researcher promised to keep confidential information about the young participants. In addition, anonymous or private information may not be made available to the public alone. The findings will be presented in the form of an overview, which is a summary of the findings for academic purposes only.

"As the volunteer's referrer and coach, I gave them permission to participate in the study." I agree that my recommended volunteers can withdraw from the study at any time. This will have no impact and will not result in the loss of any right to study or work in the future.

Signature: .....Chaogao Liang.....**Head Coach**
(.....Mr.Chaogao Liang.....)
Date:....2026.5.13.....

Signature: .....Jin Zhao.....**Researcher**
Mr.Jin Zhao
Date:....2026.5.13.....

ECMSU01-07.10 nglsh 2023

Study informed consent from the volunteer head coach

I (Mr.) ...Haibo.....Surname .....Yu....., aged ....1985..... year,
House number.....>..... Village No....>..... Sub-district...QinXiu District Changhu
Province GuangXi
Convenient phone number 15007846678

Read the explanation/listened to the explanation from Mr.Jin Zhao about volunteering in the research project titled "The Influencing Factors of Behavior Intention of Teenagers Participating in Basketball Training-Based on the Perspective of Social Cognition." The explanatory text consists of full details about the purpose of the research and the details of the study. I agree with the value of the study and am aware of the benefits to be gained and the risks that may arise from participating in the study. This includes guidelines for potential problems. Explanations and answers to any questions from the head of the research project were also received.

The researcher promised to keep confidential information about the young participants. In addition, anonymous or private information may not be made available to the public alone. The findings will be presented in the form of an overview, which is a summary of the findings for academic purposes only.

"As the volunteer's referrer and coach, I gave them permission to participate in the study." I agree that my recommended volunteers can withdraw from the study at any time. This will have no impact and will not result in the loss of any right to study or work in the future.

Signature: .....Haibo Yu.....**Head Coach**

(.....Mr.Haibo Yu.....)

Date: 2025 .13.....

Signature: .....Jin Zhao.....**Researcher**

Mr.Jin Zhao

Date: 2026.5.13.....

ECMSU01-07.10 nglsh 2023

Study informed consent from the volunteer head coach

I (Mr.) ....Dapeng.....Surname .....Mo....., aged .....1996..... year,
House number..... Village No..... Sub-district..Xixiangtang..District..Xixiang tang
Province ...GuangXi
Convenient phone number 158078199 16

Read the explanation/listened to the explanation from Mr.Jin Zhao about volunteering in the research project titled "The Influencing Factors of Behavior Intention of Teenagers Participating in Basketball Training-Based on the Perspective of Social Cognition." The explanatory text consists of full details about the purpose of the research and the details of the study. I agree with the value of the study and am aware of the benefits to be gained and the risks that may arise from participating in the study. This includes guidelines for potential problems. Explanations and answers to any questions from the head of the research project were also received.

The researcher promised to keep confidential information about the young participants. In addition, anonymous or private information may not be made available to the public alone. The findings will be presented in the form of an overview, which is a summary of the findings for academic purposes only.

"As the volunteer's referrer and coach, I gave them permission to participate in the study." I agree that my recommended volunteers can withdraw from the study at any time. This will have no impact and will not result in the loss of any right to study or work in the future.

Signature: .....Dapeng Mo.....**Head Coach**
(.....Mr.Dapeng Mo.....)
Date:...2024.5.13....

Signature: .....Jin Zhao.....**Researcher**
Mr.Jin Zhao
Date:.....2024.5.13

ECMSU01-07.10 nglsh 2023

Study informed consent from the volunteer head coach

I (Mr.) Wenwen Surname Feng, aged 1992 year,
House number..... Village No..... Sub-district Xixiangtang District Chenlong
Province Guang Xi
Convenient phone number 13558112534

Read the explanation/listened to the explanation from Mr.Jin Zhao about volunteering in the research project titled "The Influencing Factors of Behavior Intention of Teenagers Participating in Basketball Training-Based on the Perspective of Social Cognition." The explanatory text consists of full details about the purpose of the research and the details of the study. I agree with the value of the study and am aware of the benefits to be gained and the risks that may arise from participating in the study. This includes guidelines for potential problems. Explanations and answers to any questions from the head of the research project were also received.

The researcher promised to keep confidential information about the young participants. In addition, anonymous or private information may not be made available to the public alone. The findings will be presented in the form of an overview, which is a summary of the findings for academic purposes only.

"As the volunteer's referrer and coach, I gave them permission to participate in the study." I agree that my recommended volunteers can withdraw from the study at any time. This will have no impact and will not result in the loss of any right to study or work in the future.

Signature: Wenwen Feng Head Coach
(Ms.Wenwen Feng)
Date: 2024.5.13

Signature: Jin Zhao Researcher
Mr.Jin Zhao
Date: 2024.5.13

ECMSU01-07.10 nglsh 2023

Study informed consent from the volunteer head coach

I（Mr.）......Bin.........Surname ......Qin..........., aged ....1999..... year,

House number.......-...... Village No...-...... Sub-district.QinXiu.., District..Fazhan

Province ..GuangXi

Convenient phone number ..+8378844324.

Read the explanation/listened to the explanation from Mr.Jin Zhao about volunteering in the research project titled "The Influencing Factors of Behavior Intention of Teenagers Participating in Basketball Training-Based on the Perspective of Social Cognition." The explanatory text consists of full details about the purpose of the research and the details of the study. I agree with the value of the study and am aware of the benefits to be gained and the risks that may arise from participating in the study. This includes guidelines for potential problems. Explanations and answers to any questions from the head of the research project were also received.

The researcher promised to keep confidential information about the young participants. In addition, anonymous or private information may not be made available to the public alone. The findings will be presented in the form of an overview, which is a summary of the findings for academic purposes only.

"As the volunteer's referrer and coach, I gave them permission to participate in the study." I agree that my recommended volunteers can withdraw from the study at any time. This will have no impact and will not result in the loss of any right to study or work in the future.

Signature: ....Bin...Qin..................Head Coach

(.........Mr.Bin Qin..........)

Date:..2024...5...13...

Signature: ......Jin Zhao...Researcher

Mr.Jin Zhao

Date:...2024...5.13......

Informed consent form for research from volunteers' parent
(For volunteers about 12-14 years old)

I am a teenager's (father/mother) : Weilei Zhang
teenager's name: Shutong Zhang
teenager's date of birth: 2011.9.27
House number: \ Village No.: \
Sub-district: Xixiang tang District: Chaodang
province: Guang xi
Convenient phone: 13.8154.2958

Read the explanation / listen to the explanation from Mr. Jin Zhao about volunteering in the research project on "The Influencing Factors of Behavior Intention of Teenagers Participating in Basketball Training-Based on the Perspective of Social Cognition", the explanatory text consists of Full details about the purpose of the research, details of the research. That I have to do and be treated, the benefits that I may gain from the research and the risks that may arise from participating in the study. Including guidelines for questions that may arise throughout. It has also received an explanation and an answer to any questions from the research project leader.

As well as the testimony from the researcher that will keep my information confidential. In addition, not anonymously or private information individually to the public. The results of the research will be presented in the form of an overview that is a summary of the research results for academic purposes only. Your child will not be affected in any way by this study.

"In participating as a volunteer of this research project I join voluntarily." And I can withdraw from this study at any time. If I wish which will not have any effect and will not lose any rights in study or work that I will receive in the future.

sign.....Weilei Zhang..... Volunteers' parent
(.....)
Date.....2024.5.14.....

sign.....Shutong Zhang..... witness
(.....2024.5.14.....)
Date.....

sign.....Jin Zhao..... researcher
(Mr.Jin Zhao)
Date.....2024.5.14.....

Informed consent form for research from volunteers' parent

(For volunteers about 12-14 years old)

I am a teenager's (father/mother) : ...Jingli Zhu

teenager's name: Tang Xinyi

teenager's date of birth: ......2011.5.14......

House number: ......no....... Village No.: ...no........

Sub-district: ...Qin Xiu............ District: ...Langdong............

province: ....Guangxi............

Convenient phone: ......15397215233......................................

Read the explanation / listen to the explanation from Mr. Jin Zhao about volunteering in the research project on "The Influencing Factors of Behavior Intention of Teenagers Participating in Basketball Training-Based on the Perspective of Social Cognition", the explanatory text consists of Full details about the purpose of the research, details of the research. That I have to do and be treated, the benefits that I may gain from the research and the risks that may arise from participating in the study. Including guidelines for questions that may arise throughout. It has also received an explanation and an answer to any questions from the research project leader.

As well as the testimony from the researcher that will keep my information confidential. In addition, not anonymously or private information individually to the public. The results of the research will be presented in the form of an overview that is a summary of the research results for academic purposes only. Your child will not be affected in any way by this study.

"In participating as a volunteer of this research project I join voluntarily." And I can withdraw from this study at any time. If I wish which will not have any effect and will not lose any rights in study or work that I will receive in the future.

sign..........................Jingli Zhu.................. Volunteers' parent

(..)

Date..........2024.5.14..

sign..................Tang Xinyi........................ witness

(..)

Date..........2024.5.14..

sign..........................Jin Zhao.................. researcher

(Mr.Jin Zhao)

Date....................2024.5.14...........................

Informed consent form for research from volunteers' parent
(For volunteers about 12-14 years old)

I am a teenager's (father/mother) : Taotao Lu
teenager's name: Rwiting Lu
teenager's date of birth: 2011.3.10
House number: - Village No.: -
Sub-district: Xinning District: Changqing
province: Gwang Xi
Convenient phone: 13846125688

Read the explanation / listen to the explanation from Mr. Jin Zhao about volunteering in the research project on "The Influencing Factors of Behavior Intention of Teenagers Participating in Basketball Training-Based on the Perspective of Social Cognition", the explanatory text consists of Full details about the purpose of the research, details of the research. That I have to do and be treated, the benefits that I may gain from the research and the risks that may arise from participating in the study. Including guidelines for questions that may arise throughout. It has also received an explanation and an answer to any questions from the research project leader.

As well as the testimony from the researcher that will keep my information confidential. In addition, not anonymously or private information individually to the public. The results of the research will be presented in the form of an overview that is a summary of the research results for academic purposes only. Your child will not be affected in any way by this study.

"In participating as a volunteer of this research project I join voluntarily." And I can withdraw from this study at any time. If I wish which will not have any effect and will not lose any rights in study or work that I will receive in the future.

sign.....Taotao Lu..... Volunteers' parent
(.....)
Date.....2024.5.14.....

sign.....Rwiting Lu..... witness
(.....)
Date.....2024.5.15.....
sign.....Jin Zhao..... researcher
(Mr.Jin Zhao)
Date.....2024.5.15.....

Informed consent form for research from volunteers' parent
(For volunteers about 12-14 years old)

I am a teenager's (father/mother) : Yangxiong Zeng.
teenager's name: Deye Zeng
teenager's date of birth: 2011.5.7
House number: no Village No.: no
Sub-district: Qinxin District: Changhua
province: Guangxi
Convenient phone: 13269027443

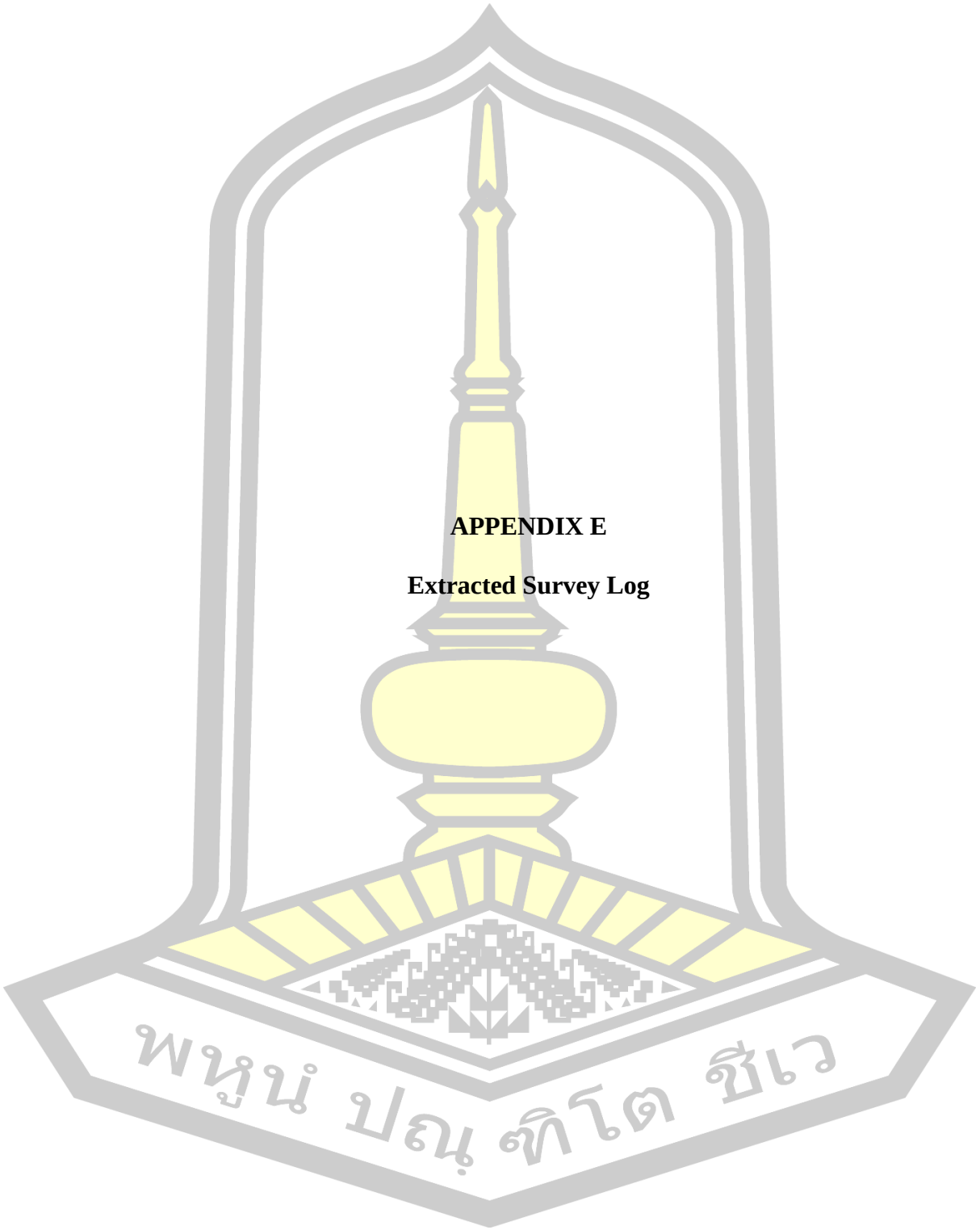
Read the explanation / listen to the explanation from Mr. Jin Zhao about volunteering in the research project on "The Influencing Factors of Behavior Intention of Teenagers Participating in Basketball Training-Based on the Perspective of Social Cognition", the explanatory text consists of Full details about the purpose of the research, details of the research. That I have to do and be treated, the benefits that I may gain from the research and the risks that may arise from participating in the study. Including guidelines for questions that may arise throughout. It has also received an explanation and an answer to any questions from the research project leader.

As well as the testimony from the researcher that will keep my information confidential. In addition, not anonymously or private information individually to the public. The results of the research will be presented in the form of an overview that is a summary of the research results for academic purposes only. Your child will not be affected in any way by this study.

"In participating as a volunteer of this research project I join voluntarily." And I can withdraw from this study at any time. If I wish which will not have any effect and will not lose any rights in study or work that I will receive in the future.

sign.....Yang xiong Zeng..... Volunteers' parent
(.....2024.5.14.....)
Date.....

sign.....Deye Zeng..... witness
(.....)
Date.....2024.5.14.....
sign.....Jin Zhao..... researcher
(Mr.Jin Zhao)
Date.....2024.5.14.....



APPENDIX E

Extracted Survey Log

The survey log --- Comprehensive implementation of data collection of this study

During the second phase of the study, I employed multiple strategies to collect data. First, I recruited some research assistants from my university and shared my experiences with them to improve the efficiency of data collection. Next, I expanded the distribution of the questionnaires by conducting them offline. With the help of a friend who is also a basketball coach, I distributed the questionnaires in locations familiar to them to ensure a smooth collection process.

In this photo, you can see a student I personally trained, who has now become a coach at the club, responsible for training young athletes aged 12-14. This student has shown great responsibility and patience while guiding these young athletes, especially when helping them fill out the survey. He carefully explained the meaning of each question to ensure the respondents could accurately understand and independently complete the questionnaire.

During the questionnaire collection process, what impressed me the most was that the strict training conducted by all the coaches was evident in the students' behavior. The students exhibited strong discipline, and the efficiency of questionnaire collection was very high. All the students took the task seriously, ensuring the accuracy and completeness of the data. This not only accelerated the data collection process but also provided high-quality data support for the study.

Although there were challenges in the data collection process, I successfully gathered sufficient data to support the empirical analysis of this study through the above strategies. At this moment, I feel fulfilled and satisfied with the progress of the research and look forward to uncovering more valuable findings in the subsequent data analysis.

Figure 6 photo from the survey.

Experiment Log: Success Owing to the Coaches' Dedication and the Athletes' Active Cooperation

After selecting the athletes, distributing questionnaires, conducting interviews, determining the time and location, and completing the pre-experiment stages, we finally began our experiment on May 15, 2024. The first training session took place at 6 PM, and I was initially concerned that someone might not show up. However, as the participants gradually arrived, some young athletes even took the initiative to greet me, saying, "Hello, Coach." Seeing their smiling faces and their enthusiasm as they laced up their shoes and dressed for training reminded me of my own training days. The first session ended smoothly.

It is worth noting that one of the coaches who participated in this experiment has previously guided U12-U14 athletes representing Nanning to win the Guangxi Championship, bringing extensive experience to the team. Every Saturday, the coach organizes full-court competitive matches, ensuring a comprehensive training experience. On Family Day, the parents eagerly came to the court to participate in the family activities.

Figure 7 Photos in the process of experiment.

Experiment log 3, My harvest

During this experimental phase, I deepened my understanding of the factors influencing adolescents' intentions to participate in basketball training and gained valuable hands-on experience. Firstly, through direct interaction with students and coaches, I observed firsthand how various factors impact adolescents' motivation and commitment to training. For example, I noticed that strict requirements and positive feedback from coaches significantly enhanced students' confidence and enthusiasm for training, providing practical insights for designing future intervention strategies.

Additionally, throughout the experiment, I learned how to effectively organize and manage the data collection process. This not only involved the distribution and retrieval of questionnaires but also required strong communication and coordination skills with all parties involved. In facing unexpected challenges, I developed the ability to adapt quickly, ensuring the smooth progress of the experiment. These experiences will have a lasting impact on my future research endeavors and have

strengthened my resolve to continue exploring and advancing in the field of scientific research.

Figure 8 Photos after the experiment.

BIOGRAPHY

NAME	Mr.Jin Zhao
DATE OF BIRTH	July 8, 1990
PLACE OF BIRTH	Qinzhou, Guangxi, China
ADDRESS	Guangxi Nanning 33 Rowen Avenue
POSITION	Lecturer
PLACE OF WORK	Guangxi Polytechnic of Construction
EDUCATION	2008 to 2012 Bachelor's Degree, Economy, Admitted to the Huazhong University of Science and Technology Wenhua College 2012 to 2015 Master's Degree, Field of Sports Humanities and Sociology, Admitted to the Guangxi Teachers Education University 2021 to 2024 Doctor of Philosophy Program in Exercise and Sport Science, Mahasarakham University