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Development of Physical Education Model for 7-12th Graders

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Abstract

During physical, social support also affects the change in students' attitude towards sports. Therefore, in order to propose suggestions for improving physical education, this study enrolled students participating in sports team in Taiwan as the research subjects and performed investigations them to develop the participation model for students in sports teams and provide constructive strategies according to it, in order to effectively improve students' sports participation. According to the research conclusions, the goodness of fit of the overall measurement model is good, the convergent validity and discriminant validity are acceptable, and most of the relevant indices all meet the criteria. This study used path analysis to analyze the path coefficients among various variables, and discovered that all of the paths were significant. The potential variable that has the most significant influence on participation motivation is social support, namely, the influence of social support on participation motivation is more significant.

Keywords: 7-12th graders, physical education, participation motivation, social support, team support

1. Introduction

For compulsory education in Taiwan, because the concept of credentialism is still rooted in parents' mind, the value of sports tends to be overlooked, and parents usually develop a misconception about physical education. They suggest that, as long as students participate in a sports team, their academic performance and demeanor will become poor, and their future employment will encounter difficulties, especially for 7-12th graders (12-18 years old). These students face multiple stresses, such as academic performance, sports performance, and senior high school/university admission. If psychological adjustment and timely counseling and care cannot be provided, students certainly will face the predicament of both physical and psychological fatigue and their participation intention will be affected.

Sports participation is an important method for promotion health. In addition to alleviating stress (Iwasaki, 2006), long-term and regular exercise can also provide good social interaction environment, offer opportunities of making friends and engaging in social interactions (Young, Gittelsohn, Charleston, Felix-Aaron, & Appel, 2001), help learn teamwork and mutual assistance, and improve self-confidence and interpersonal relationship (Cordes & Ibrahim, 2001). Therefore, physical education is imperative to children's physiological, psychological, and social relationship development. The cultivation of sports habit is mainly originated from the stage of 5-12 years old (Cordes & Ibrahim, 2001). However, students over the age of 12 in Taiwan who are faced with the pressure of future school admission will overlook the importance of sports due to importance attached to school admission examination and academic performance. Therefore, how teachers engaging in sports teaching for 7-12th graders enable students to maintain a positive attitude towards sports and develop accurate perception is critical (Aicinena, 1991). Besides, students' positive/negative attitude towards school sports participation also will affect the possibility of their future actual sports participation (Silverman & Subramaniam, 1999).

The objective of group training of sports team is to use long-term, well-planned, and regular training project to cultivate students with sports potential, and the training process is extremely tough. Therefore, during physical education, it is very important to increase students' participation motivation. If there is a lack of the promotion of intrinsic motivation or extrinsic motivation, there will be a negative effect on students' learning interest (Corey, Charles, Michael, Kelly, & Ting, 2010). In addition to the improvement of motivation, social support also

changes students' attitude towards physical education (Beets, Vogel, Chapman, Pitetti, & Cardinal, 2007; Beets, Vogel, Forlaw, Pitetti, & Cardinal, 2006; Norman & Bente, 1992). Social support not only can increase the intention of sports participation, but also can convert participation intention into substantial sports participation (Fuchs, 1996). However, during sports participation, students will encounter barriers from different aspects, and individuals may also encounter different types of barriers due to the differences in motivation and need of sports participation, which affects their intention to participate in sports (Iwasaki, 2003).

In order to understand the correlation among sports participation motivation, social support, and participation barriers, as well as to propose suggestions for improving physical education, this study selected students participating in sports teams in Taiwan as the samples, and performed analyses to enable teachers engaging in physical education for students to effectively discover the problems and develop effective strategies to improve students' sports participation.

1.1 Participation Motivation

Motivation can be regarded as a specific behavior, as well as a direction for guiding the behavior and a persistent state of mind (Corey, Charles, Michael, Kelly, & Ting, 2010). It is also a stimulated need, which is sufficient to induce individuals' actions to meet their needs or reduce their tension (Kotler, 1997; Adams, 1963). In leisure field, the stronger the leisure motivation is, the higher the frequency of leisure participation is (Moutinho, 2000). Wuest and Bucher (2003) indicated that, sports motivation is the internalized physiological or psychological need, which facilitates individuals' development of intention or driving force to achieve a certain objective. If there is a lack of the promotion of intrinsic motivation or extrinsic motivation, there will be a negative effect on students' learning interest (Corey, Charles, Michael, Kelly, & Ting, 2010). Therefore, motivation can also be viewed as the driving force for individuals to develop future behaviors. In addition, the cause-and-effect relationship between motivation and behavior has also been verified. As a result, participation motivation will lead to the occurrence of participation behavior.

Deci and Ryan (1991) divided participation motivation of sports behavior into three types: intrinsic motivation, extrinsic motivation, and a-motivation. Hanqin and Lam (1999) proposed push motivations, such as knowledge, reputation, strengthening of interpersonal relationship, relaxation, and novelty. Gould and Petlichoff (1988) also suggested that the main motivations of sports include improvement of techniques, interest, social interactions, experience & excitement, success, and development of physical fitness. This study investigated two variables, social support and participation barriers, in order to understand the factors affecting sports participation motivation of 7-12th graders.

1.2 Participation Barriers

Many studies have investigated the classification of barrier factors of leisure and recreation (Ellis and Rademacher, 1986; Crawford and Godbey, 1987; Jackson, 1988). Participation barriers of leisure and recreational activities can be regarded as various factors inhibiting or reducing the participation frequency and pleasure perception of relevant activities (Crawford & Godbey, 1987; Jackson, 1988). In terms of the barriers of leisure and recreational activities, Crawford and Godbey (1987) divided theme into three types: intrapersonal barriers, interpersonal barriers, and structural barriers (or leisure barriers). After facing intrapersonal and interpersonal barriers, individuals eventually will face structural barriers. If they can overcome structural barriers, they can participate in leisure activities. If they can't, they will be affected and will not participate in leisure activities (Crawford, Jackson and Godbey, 1991). Moreover, individuals may also encounter different types of leisure participation barriers due to the differences in motivation and need. For the barrier factors affecting individuals' leisure participation, the level of barrier also directly affects individuals' level of participation and intention (Iwasaki, 2003). Barriers are one of the factors affecting individuals' participation in leisure activities, and participation frequency is negatively correlated with barriers (Caroll and Alexandris, 1997). Based on the said reasons, this study suggested that, sports participation barriers affects sports participation motivation.

1.3 Social Support

Social support is the function developed in individuals under a specific situation where they are pursing objectives and meeting their needs (Tolsdorf, 1976). It is also individuals' achievement of objectives of their inner desire through other people's help during participation in any activity (Caplan, 1974; Oh, 2005). Such a help or function is usually formed by resources provided by other people (Cohen and Syme, 1985), and directly or indirectly affects individuals' behavior (Forster, 1989). In sports behaviors, social support is one of the factors for maintain sports behaviors. In addition to increasing individuals' intention to participate in leisure sports, social support can further convert participation intention into substantial leisure sports participation (Fuchs, 1996). The study by Kingery (1990) discovered that, the higher the self-perceived social support for sports is, the

better the performance of sports behavior is. Moreover, social support for sports will also lead to the change in attitude towards physical education. Such a change is not limited to attitude, but also includes the transformations of behavior and performance, such as regular exercise, physical activity level, and sports participation (Beets, Vogel, Chapman, Pitetti, & Cardinal, 2007; Beets, Vogel, Forlaw, Pitetti, & Cardinal, 2006; Norman & Bente, 1992). To adolescent sports populations, peer participation, as well as obtainment of happiness, praise, and affirmation, are both important factors that stimulate sports participation (Young, Gittelsohn, Charleston, Felix-Aaron, & Appel, 2001; Cobb, 1976). In terms of the sources of social support, parents, teachers, and peers all will affect individuals' sports participation behaviors (Thoits, 1985; Nixon, 1984; Norman & Bente, 1992), and the influence of family and (Beets, Vogel,Forlaw, Pitetti, & Cardinal, 2006) professional sports coaches (Bucher and Krotee, 2000) is most important.

Many current studies have found that, social support is significantly positively correlated with sports participation motivation (Sallis, et al., 1992; King, 2001; Coleman & Iso-Ahola, 1993; Fuchs, 1996; Berkman, 1995; Seeman, Berkman, Charpentier, Blazer, Albert & Tinetti, 1995; Oh, 2005). In addition, social support has a significant influence on intention to participate in leisure sports (Bialeschki &Michener, 1994; Kay, 1998). In particularly, social support is highly positively correlated with sports participation motivation of adolescent population (King, 2001). Social support from friends is also highly positively correlated with physical activity level of adolescent population (Sallis, Simons-Morton & Stone, 1992). Based on the above, this study suggested that, social support has an influence on sports participation motivation. This study particularly found that, children aged 9-12 most need support from family (Bokhorst, Sumter, & Westenberg, 2010). Besides, past studies investigating participation barriers tended to discover that, participation barriers will also be developed in the aspect of "significant others," such as society, interpersonal relationship, companion, and group support or the lack of adequate or sufficient sports partners, and thus affects individuals' participation. The aforementioned factors are also the concept of social support. Therefore, this study also attempted to include social support into the discussion in order to make the model development more complete.

2. Method

2.1 Research Method and Tools

This study selected samples in Miaoli County, Taiwan. According to the needs of this study, this study used purposive sampling to enroll players participating in The 2015 National High School Athletics Games in Miaoli County as the subjects. The age of the subjects was 13-18 years old, and they studied in junior high schools or senior high schools (7-12th graders). For questionnaire design, this study mainly designed the questionnaire for players participating in athletic competitions in high schools. Wang (1999) indicated that, "The sample size of the pretest should be at least 100 people to meet the requirement for statistical analysis." From March 1, 2015 to March 15, 2015, this study randomly distributed the pretest questionnaires at two places, Hsinchu County Tongtex Secondary High School and Miaoli County Dalun Junior High School. A total of 120 questionnaires were distributed, after a total of 10 invalid questionnaires (with incomplete answers) were deleted, there were a total of 110 valid questionnaires, with a return rate of 91.7%. After the pretest questionnaires were returned, arranged, and coded, this study used statistical package software SPSS for Windows 18.0 to process data. Firstly, this study performed an item analysis to increase the instructions of questionnaire and the reliability and validity of final questionnaire. For the design of final questionnaire, in addition to taking into account the pretest results, this study also referred to the feedback and suggestions for questionnaire provide by school coaches of the pretest to make revisions. The final questionnaire was composed of a total of 4 parts. Part 1 was "Personal Basic Information," Part 2 was "Scale on Participation Motivation," Part 3 was "Scale on Barrier Factors," and Part 4 was "Scale on Social Support." After the questionnaire was properly revised and items were added and deleted according to this study, the pretest was performed after the questionnaire was reviewed by experts and scholars. This study used 5-point Likert scale for scoring. According to the subjects' answers, "strongly agree," "agree," "somewhat agree," "disagree," and "strongly disagree" were scored 5, 4, 3, 2, and 1 points, respectively. The higher the score was, the higher the satisfaction with experiences was. The lower the score was, the lower the satisfaction with experiences was. The explanations are given as follows:

(1) Personal Basic Information: including gender, grade, and seniority of group participation, weekly practice time, family socioeconomic background, and property of sports team where they participate.

(2) Scale on Participation Motivation: this scale was mainly modified from the questionnaires developed by Heapes (1978), Iso-Ahola (1982), Gould and Petlichoff (1988), Deci and Ryan (1991), Weissinger and Bandalos (1995), Murray and Nakajima (1999), and Hanqin and Lam (1999). This scale included 4 dimensions, self-improvement, social need, sense of accomplishment, and self-actualization.

(3) Scale on Barrier Factors: this scale was modified from the questionnaires developed by Townsend (1981), Crawford, Jackson and Godbey (1991), Dishman, (1991), and Raymore, Godbey, Crawford, and VonEye (1993), "scale on leisure barrier" comprehensively applied in Taiwan, and the questionnaire developed by Vallerand and Rousseau (2001). This scale included 4 dimensions, social support, self-stress, perception factors, personal performance, and administrative support.

(4) Scale on Social Support: this scale was modified from the questionnaires developed by Cobb (1976), Cobb (1979), Cohen and Wills (1985), Young, Gittelsohn, Charleston, Felix-Aaron, & Appel, 2001, and Robert and Angelo (2001). This scale included 4 dimensions, group support, family support, coaches and teachers, and classmates.

2.2 Questionnaire Survey and Analysis

This study conducted a questionnaire survey from May 1, 2015 to May 15, 2015. This study selected players in sports teams of all of the competitions of junior and senior high schools in Hsinchu and Miaoli Counties as the research subjects. For the implementation method, this study assigned surveying personnel to directly visit schools of the subjects, and the subjects completed the questionnaire in the company of coaches. This study distributed questionnaires at a total of 31 schools, and 420 questionnaires were returned. After 11 invalid questionnaires (with incomplete answers) were deleted, 399 valid questionnaires were returned, with a valid return rate of 95%. With the assistance of friendly surveying personnel and their careful inspection on completeness of questionnaires upon completion of questionnaires, the valid return rate of questionnaire survey was indeed improved (Lee, 2009).

In terms of reliability analysis, the Cronbach's α of three latent variables, motivation to participate in sports competition, barrier factor affecting player's participation in sports competition, and social support for player's participation in competition was .942, .935, and .934, respectively, and was higher than the basic standard value of .70 (Nunnally & Bernstein, 1994), suggesting that the reliability of questionnaire survey was acceptable.

2.3 Data Analysis

This study used SPSS 17.0 for Windows to perform Kaiser-Meyer-Olkin (KMO) and Bartlett's sphericity test on three variables, motivation to participate in sports, participation barriers, and social support for players. The results showed that, the KMO measure of sampling adequacy of all of them was > .900. In addition, Bartlett's test of all of them all reached significance (p0.001). Therefore, they were suitable for factor analysis (Kaiser, 1974). Moreover, this study used exploratory factor analysis (EFA) to extract factors. In general, principal axis factoring is mainly used to perform factor analysis in behavioral studies. Therefore, this study used this method to extract factors for developing structural equation modeling (Iacobucci, 2001; Preacher & MacCallum, 2003). In the end, this study used SPSS Amos 21.0 for Windows to test model theoretical correlation and model goodness-of-fit of the proposed structural equation modeling. This study used maximum likelihood estimation to test all of the variables for model estimation. In addition, this study also tested the hypotheses to understand whether there were significant correlations among variables.

2.4 Exploratory Factor Analysis

In terms of the Scale on Participation Motivation, according to the item analysis results, excessively low correlation coefficient may affect the accuracy of results. Therefore, this study deleted the items of Scale on Participation Motivation to 15 items. After the factor analysis, the items of the scale were reduced to three dimensions, which were named as "self-improvement," "social needs," and "fulfillment of achievement." The cumulative variance explained was 62.367%. Except for Item 12 (parents' suggestions or encouragements) of "social needs," the factor loading of all of the other items was >.45. After Item 12 was deleted, this study preliminarily confirmed that the construct validity of motivation to participate in sports competition was good (Tabachnick and Fidell, 2007). In order to understand the consistency and stability of the extracted factors, this study further analyzed the reliability of participation motivation. After Item 12 was deleted, the Cronbach's α of reliability of three factors was >.8, suggesting that each factor was highly reliable (Nunnally, 1978; George & Mallery, 2003).

In terms of the Scale on Participation Barriers, according to the item analysis results, this study deleted the items of Scale on Participation Barriers to 14 items. After the factor analysis, the items of the scale were reduced to three dimensions, which were named as "social barrier,' "training stress," and "personal factors." The cumulative variance explained was 60.996%. The factor loading of Item 4 of dimension "training stress," as well as Items 13 & 17 of dimension "personal factors" was <.45. Therefore, the said items were deleted to ensure that the construct validity of dimensions was good. In terms of reliability analysis, the original Cronbach's α of all of the

three barrier factors affecting player's participation in sports competition was >.8. After Item 4 was deleted, Cronbach's α of dimension "training stress" was slightly decreased to .873. After Items 13 and 17 of dimension "personal factors" were deleted, Cronbach's α increased to .835, suggesting that each factors was highly reliable.

In terms of the Scale on Social Support, according to the item analysis results, this study deleted the items of Scale on Social Support to 16 items. After the factor analysis, the items of the scale were reduced to 4 dimensions, which were named as "team's support," "teacher's support," "family's support," and "classmates' support." The cumulative variance explained was 67.935%. The factor loading of all of the items was >.45, and the construct validity was good. Therefore, there was no need to delete the items. In terms of reliability analysis, Cronbach's α of all of the 4 dimensions of social support was >.8, suggesting that each factor was highly reliable.

In order to confirm the reliability and construct validity of the entire questionnaire, after the first factor analysis, this study performed the second factor analysis and reliability analysis on various dimensions, and found that the entire questionnaire was composed of three dimensions. The cumulative variance explained was 68.299%. In addition, except for team's support and classmates' support, the factor loading of all of the other items was >.7. Therefore, this study preliminarily confirmed that the construct validity of the entire questionnaire was good. Moreover, the Cronbach's α (reliability) of all of the three dimensions was >.8, and was acceptable (Cuieford, 1965). Therefore, this study confirmed that the consistency and stability of the research tools were acceptable.

3. Results

3.1 Sample Data Analysis

In terms of gender, most of the subjects were male (73.9%). For grade, most of them were 8th graders (14-15 years old; 31.6%). For socioeconomic background, most of them were from common socioeconomic background (53.6%). Most of their seniority of participation in competition was 3 years and above (40.4%). However, that of 22.6% of them was less than 1 year. For weekly practice hours, 46.4% of students practiced at least 16 hours per week. However, 27.8% of them practiced less than 6 hours per week. For the property of sports team, 67.4% of the students belonged to group sports team.

3.2 Descriptive Statistical Analysis on Participation Motivation, Barrier Factors, and Social Support

In terms of participation motivation, the score of "self-improvement" was the highest, while that of "fulfillment of achievement" was the lowest. For barrier factors, the score of "personal factors" was the highest, while that of "social barrier" was the lowest. For social support, the score of "team's support" and "family's support" was the highest, while that of "teacher's support" was the lowest.

3.3 Structural Equation Modeling

Confirmatory factor analysis (CFA) should be performed before the SEM to perform measurement model analysis on various factors and dimensions (Thompson, 2004), assess and verify model, provide relevant information required by confidence level of structural model, and prove whether the measurement scale actually reflect the characteristics of latent variables (Kenny, 2006). This study used the two-stage analysis of SEM. Firstly, this study performed confirmatory factor analysis on various research dimensions and items to understand the composite reliability, convergent validity, and discriminant validity of various dimensions. Secondly, this study used linear structural relationship to develop the structural model, as well as test various research hypotheses (Williams & Hazer, 1986).

3.4 Measurement Model

Before the analysis is performed on measurement model and structural model, it is necessary to understand the goodness of fit of various dimensions and test relevant indices with acceptable goodness of fit. For the measurement model and structural model, the goodness of fit indices used in this study included chi-square and degree of freedom (DOF) ($\chi 2$/df), adjusted goodness of fit index (AGFI), goodness of fit index (GFI), normed fit index (NFI), comparative fit index (CFI), root mean square error of approximation (RMSEA), and standardized root mean squared residual (SRMR).

Participation motivation and participation barriers were divided into three dimensions, respectively. Therefore, they were just identification (df-p=0), with a chi-square value=0 and GFI=1. Social support was divided into four dimensions, and was over identification (df-p=2). The variable $\chi 2$/df =1.349, meeting the standard of <3 (Kline, 2005). AGFI=0.983, meeting the standard of >0.8 (MacCallum and Hong, 1997). GFI=0.997, NFI=0.996, CFI=0.999, SRMR=0.011, meeting the standards of GFI, NFI, and CFI >0.9, and SRMR <0.1 (Henry & Stone, 1994). RMSEA=0.030, meeting the standard of <0.05 (Schumacker and Lomax, 2004). Among the three variables in this study, two of them were just identification, while the other one was over identification. In

addition, all of the goodness of fit indices were higher than the recommended value. Therefore, as a whole, the goodness of fit of the measurement model was good.

The convergent validity has to meet the following conditions: factor loading >0.5, and shows significance in the t test (Hair et al., 1998). Composite reliability has to be >0.6 (Fornell & Lacker, 1981; Bagozzi & Yi; 1988). Average Variance Extracted (AVE) of latent variables has to be >0.5 (Fornell and Lacker, 1981). The factor loading of all of the items of three research variables was >0.6. The composite reliability was 0.91, 0.87, and 0.85, respectively. The AVE was 0.76, 0.68, and 0.59, respectively. Therefore, the three conditions of convergent validity were met. For discriminant validity, the judgment criterion is that the square root of AVE of each variable should be greater than the absolute value of correlation coefficients among various variables and should account for at least 75% of overall number for comparison (Hair et al., 1998). The square root of AVE in this study was greater than the absolute value of correlation coefficients among various variables. Therefore, the discriminant validity was good.

3.5 Structural Equation Modeling

For the use of SEM for verification of theoretical model, a good model goodness of fit is the basic condition for analysis (Byrne, 2010). The goodness of fit indices used in this study included chi-square and degree of freedom ($\chi 2$/df), adjusted goodness of fit index (AGFI), goodness of fit index (GFI), normed fit index (NFI), comparative fit index (CFI), Root mean square error of approximation (RMSEA), and Standardized root mean squared residual (SRMR). $\chi 2$/df of this study was 4.742, meeting the standard of $\leqq 5$ (Schumacker and Lomax, 2004). For other relevant indices, except for RMSEA, all of them all met the standards. In general, RMSEA <.06 is the threshold for a good model (Hu & Bentler, 1999), and .08 is the threshold for an acceptable model (McDonald & Ho, 2002). However, when the sample size is small, RMSEA value can be easily enlarged (Fan et al., 1999). The sample size of this study was 399. Although the basic threshold of 200 for SEM analysis was met (Barret, 2007), this study was still an analysis of smaller sample size in SEM analysis. Therefore, RMSEA could be affected and enlarged.

This study used path graph to analyze the path coefficients among various variables. Therefore, the significance of null hypothesis, as well as the explanatory power of variance, can be explained. As shown in Figure 1 and Table 4, all of the paths reached significance. In the research model, the standardized coefficient of each path was:

1. Social support->participation motivation (0.56)
2. Social support->barrier factors (-0.50)
3. Barrier factors->participation motivation (-0.21)

In the structural model, weighted standardized regression coefficient can be used to understand the relative influence of variables (Chen and Wang, 2010). As shown in Figure 1 and Table 4, the latent variable which had the most significant influence on participation motivation was social support. Square Multiple Correlations (SMCs) is explained variance (R2), representing the explanatory power of Exogenous variables for Endogenous variables (Chang and Cheng, 2012). In this study, R2 of barrier factors was .249, and that of participation motivation was .474, suggesting that social support indeed had a more significant influence on participation motivation.

4. Discussion

4.1 Discussion on Results of Participation Motivation, Barrier Factors, and Social Support

In the analysis on order of dimensions of participation motivation, the average score of "self-improvement" was the highest, while that of "fulfillment of achievement" was the lowest. Therefore, students' sports team participation motivation is to improve their physique, strengthen fitness, and enhance immunity to achieve better physical health, as well as to improve sports skills, create more outstanding performance in competitions, and show sports talent through school coach's physical training and sports technique instruction. This result is consistent with that of the studies by Hanqin and Lam (1999) and Gould and Petlichoff (1988). The research results showed that, the motivation of sports team participation is to pursue the development of sports perception, skills, and physical fitness, as well as to create more outstanding sports performance.

In the analysis on order of dimensions of barrier factors, the average score of "personal factors" was the highest, while that of "social barrier" was the lowest. Therefore, among all of the barriers preventing students from participating in sports team, students attached the highest importance to whether there are capable of participating in sports team, coach's expectation, outdated school training devices, and school funding. The score

of "social barrier" was the lowest. Among barrier factors, students still had their own assertive opinions and seldom refused to participate in sports team due to other people's opposition. This result is consistent with that of the studies by many scholars, such as Searle & Jackson (1985), Crawford & Godbey (1987), Hohepa, Schofield, Kolt (2006), and Ebben, and Brudzynski (2008).

In the analysis on order of dimensions of social support, the average score of "team's support" and "family's support" was the highest, while that of "teacher's support" was the lowest. The answers to questions in this scale of the subjects (sports team players) were moderate and above, suggesting that most of the subjects held a positive attitude towards social support. The score of "team's support" and "family's support" was the highest, suggesting that players participating in group sports at this age most need support from teammates and coach. This result is consistent with that of the studies by King (2001) and Bokhorst, Sumter, and Westenberg (2010).

4.2 Discussion on SEM

Measurement model: as a whole, the goodness of fit of measurement model was good. For convergent validity, the three conditions of convergent validity were met. For discriminant validity, the square root of AVE in this study was greater than the absolute value of correlation coefficients among various variables. Therefore, the discriminant validity was good.

SEM: the chi-square/degree of freedom was 4.742, meeting the standard of ≦5 (Schumacker and Lomax, 2004). For other relevant indices, except for RMSEA, all of them all met the standards. This study used path graph to analyze the path coefficients among various variables. All of the paths of research model reached significance. This study also found that, the latent variable which had the most significant influence on participation motivation was social support. This result is consistent with that of the past studies suggesting that social support affects participation motivation and is positively correlated with it during players' participation in training (Cobb, 1976; Kingery, 1990; Bucher and Krotee, 2000; King, 2001; Oh, 2005). The influence of social support on participation motivation was indeed more significant than that of barrier factors.

5. Conclusion

Most of the subjects in this study were male, and most of them were 8th graders. For socioeconomic background, most of them were from common socioeconomic background. The seniority of participation in competitions was mainly at least 3 years and less than 1 year. For weekly practice hours, because all of the subjects were sports team players, the weekly practice hours were at least 16 hours. In addition, most of them engaged in group sports. 2. In terms of participation motivation, the score of "self-improvement" was the highest, while that of "fulfillment of achievement" was the lowest. In terms of barrier factors, the score of "personal factors" was the highest, while that of "social barrier" was the lowest. In terms of social support, the score of "team's support" and "family's support" was the highest, while that of "teacher's support" was the lowest. 3. The goodness of fit of overall measurement model was good, and so was convergent validity and discriminant validity. Moreover, most of the relevant indices all met standards. This study used path graph to analyze the path coefficients among various variables. All of the paths of the research model reached significance. The latent variable that had the most significant influence on participation motivation was social support. In addition, social support had a more significant influence on participation motivation.

6. Recommendation

This study proposed the following suggestions according to the research results:

In the analysis on order of dimensions of participation motivation, the average score of "self-improvement" was the highest. It is hoped that schools can hire professional coaches and frequently hold in-campus class-to-class sports competitions to trigger participation motivation and passion of general students to enable students to develop more active participation motivation.

In terms of barrier factors, the score of "personal factors" was the highest. In other words, barriers were from physical and psychological adjustments of individuals. It is advised to establish complete counseling institutions in the future to effectively deal with and resolve possible predicaments faced by outstanding sports players.

In terms of social support, the score of "team's support" and "family's support" was the highest. Therefore, coaches should strengthen the contact and communication with parents and teachers to reduce stress in work and focus on assisting players in creating outstanding performances.

Because social support indeed had a significant influence on participation motivation and would reduce barrier factors, it is advised to aggressively establish parent support group or other supportive institutions, which will help resolve the issue of shortage of funds and assist in school team training.

Future studies are advised to use qualitative research methods, interviews, and observations to obtain more detailed information, as well as qualitative and quantitative research results.

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