

Understanding Sport Participation Motivation and Barriers in Adolescent 11-17: An Introduction of Rowing Activity in Schools

了解青少年參與賽艇活動的意向：在學校推廣賽艇活動

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Abstract

The purpose of this study is to identify the drivers and barriers perceived by the adolescents for their desire to participate in rowing activity. 1,333 secondary school students, including 762 boys, 565 girls, and 6 students whose gender are not specified, aged from 11 to 17 participated in the survey after taking a rowing promotion programme and an 1-min maximal rowing ergometer test. The findings highlight that the male adolescents have stronger desire in taking rowing activity, besides, the desire seems to decline with the age in both gender groups. The female adolescents emphasize the enjoyment they gained in rowing activity, while the male adolescents concern final achievements more. Lack of interest is the most stated reason for their no intention to start rowing activity. Recommendations are suggested to meet the different motivational demands by adjusting the contents of the promotion programme or providing various programmes.

摘要

本研究探討青少年在學校推廣賽艇活動之後，影響他們參與賽艇活動的意向及考慮因素。共1,333名中學生(762男，565女，6位沒有填上性別)完成校內賽艇推廣活動之後進行問卷調查。研究發現：1) 男女生參與的意向隨著年紀增長而下降，男生參加賽艇活動的意向比女生大。2) 男女生參與的原因分別是著重參與所得到的樂趣和運動成績。而他們提出不想參加賽艇活動的原因是不感興趣。提議：在賽艇推廣活動中可調節內容和提供多元化的活動，從而迎合他們的不同需要。

關鍵詞：參與運動、動機、障礙、青少年、賽艇、學校

Introduction

Regular physical activity (PA) is associated with immediate and long-term benefits including lower rates of obesity, improved cardiovascular and muscular fitness, higher bone mineral density, improved psychosocial health, and academic achievement among children and adolescents (Centers for Disease Control and Prevention, 2008; Etnier et al., 1997; Shephard, 1997; Strauss, Rodzilsky, Burack

& Colin, 2001; Symons, Cinelli, James & Groff, 1997). Besides, establishing patterns of PA during childhood and adolescence is important to develop positive behaviours that can be deployed throughout the life course.

Although PA brings such considerable benefits in physiological, psychological, and academic fields, declines in PA levels among children and adolescents was still unfortunately observed (Biddle, Gorely & Stensel, 2004;

van Mechelen, Twisk, Post, Snel & Kemper, 2000). Some researchers suggested to invoke their participation by offering various of PA programmes for adolescents in America (Dwyer et al., 2006), United Kingdom (Mulvihill, Rivers & Aggleton, 2000) and Australia (Fawcett, Garton & Dandy, 2009).

According to the process model of participation motivation in sport and exercise suggested by Busby (1997), intention is the immediate determinant of a decision to act. A lot of studies showed that intention is a predictive index of exercise behaviour (Dzewaltowski, Noble & Shaw, 1990; Riddle, 1980). Several researchers investigated the differences in youth motives across sports, age, and gender and suggested that children and adolescents are subject to the environmental influences in their motivation to participate in certain physical activities (Brustad, 1988; Duda, 1985; Gould, Feltz & Weiss, 1985; White & Duda, 1994).

The participation motives related to rowing sport is scarce. Rowing in Hong Kong is not popular among adolescents compared with other traditional PA (Hong Kong Sports Development Board, 2000). The benefits of rowing have been demonstrated. It is an aerobic exercise with low impact, and the intensity is completely controlled by participants, making it suitable for people of all ages and all walks of life. The smooth, rhythmic motion of rowing involved many muscle groups. It can be both recreational, focusing on learning the techniques required, and competitive where overall fitness plays a large role. The participants can be trained by rowing ergometer, water sculling (two oars) or rowing (one oar) with a variety of boat types.

Allender, Cowburn and Foster (2006) underwent a critical review of qualitative research from 1990 to 2004 to examine the barriers and motivation to participation in sport and PA in the United Kingdom, they concluded that there was no study reporting the barriers to participate in sport and PA facing among young children. Therefore, the purpose of this study is to investigate the intention of the adolescents in Hong Kong in participating rowing activity and the factors that might influence their decision. Finally, a motivation model of PA participation in rowing will be constructed.

Methods

Instrumentation

The questionnaire was adapted and modified from Sports Council for Northern Ireland (SCNI) survey (Kremer, Trew & Ogle, 1997). The two-page-questionnaire in both English and Chinese consists of three sections: (a) personal information including age, gender, level of involvement in PA, and score of 1-min maximal rowing ergometer test, (b) the evaluation of coach and Youth Rowing Development Programme (YRDP) and (c) their behavioural outcome of persistences which were assessed by asking their intention of participating rowing activity and by ranking the top five reasons for making their choice in an index from 1 to 5 in which the value of "1" is the strongest.

The questionnaire was conducted in an informal discussion and was evaluated by three rowing coaches. It was then pre-tested on twenty (12 male and 8 female) students who were training in rowing beginner course. The purpose of the pilot study was to collect and analyse qualitative data in terms of clarity, ambiguity, order, appropriateness of information sought, suitability of response format, and overall coverage of the questionnaire. Only minor wording and design was changed to improve the content of the draft questionnaire, and made it easier to complete. A test retest reliability was carried out with forty (20 male and 20 female) Form Four students from one of the secondary schools in East New Territories (N.T.) of Hong Kong. They completed two questionnaires twice with one hour apart. The Cronbach's coefficient alpha of between 0.845 and 1 was revealed for the instrument.

Procedures

Three aided secondary schools in three districts in East NT of Hong Kong were selected to participate in the YRDP organized by the Hong Kong, China Rowing Association. The contents of the activity include an introduction of rowing, height and weight measurement, demonstration of indoor rowing, and 1-min maximal rowing ergometer test. The data were collected during physical education class from September to October 2008. All students studying from Secondary Form 1 to Form 4 completed a physical activity readiness questionnaire and an informed written consent form, which was filled out by both the parents and the students before

participating in the survey and 1-min maximal rowing ergometer test. A trained researcher who is a qualified rowing coach administered the questionnaire and the test. No incentive was provided for participation. Students responded to the questionnaire anonymously and were assured about the confidentiality of their answers.

Data Analysis

Their intentions to participate in rowing activity with stated reasons are described in frequencies and percentages. The top five stated reasons by each adolescent are recoded so as a comparison among the stated reasons could be carried out. The reason ranked number 1, 2, 3, 4 and 5 received a score of 5, 4, 3, 2 and 1 respectively. Larger sum of the scores indicate much more importance of the reason for their choices. In addition, Chi-square analysis is used to determine if significant relationship existed between their intention and i) age difference, ii) gender and iii) the score of 1-

min maximal rowing ergometer test. A series of t-test were performed to examine whether the effectiveness of YRDP affected their intentions to join the rowing activity. The alpha level was set at $p < .001$ to determine the significance of the statistical relationship. All analyses were undertaken using the SPSS for Windows software package (Version 17).

Results

A total of 1,333 out of 1,400 questionnaires were received, representing 95.2% response rate. The participants were 1,333 secondary school students (762 boys, 565 girls; 6 with gender not specified). All students are Chinese. They ranged in age from 11 to 17 years old (mean = 13.51; SD = 1.38).

About one-third of the male adolescents (29.7%) and one-seventh (14.0%) of the female adolescents reported that they had regular PA participation. Among the exercisers, more than half of them (54.9%) were school representatives (see Table 1).

Table 1. Participation in PA of the Adolescents.

	All (n = 226)	Female (n = 79)	Male (n = 147)
Recreation	29.6% (n = 67)	34.2% (n = 27)	27.2% (n = 40)
School Representative	54.9% (n = 124)	51.9% (n = 41)	56.5% (n = 83)
Club Representative	6.6% (n = 15)	5.1% (n = 4)	7.5% (n = 11)
Regional Squad	6.6% (n = 15)	8.9% (n = 7)	5.4% (n = 8)
Junior Squad	1.3% (n = 3)	0%	2.0% (n = 3)
National Squad	0.9% (n = 2)	0%	1.4% (n = 2)

Intention to Participate in Rowing Activity

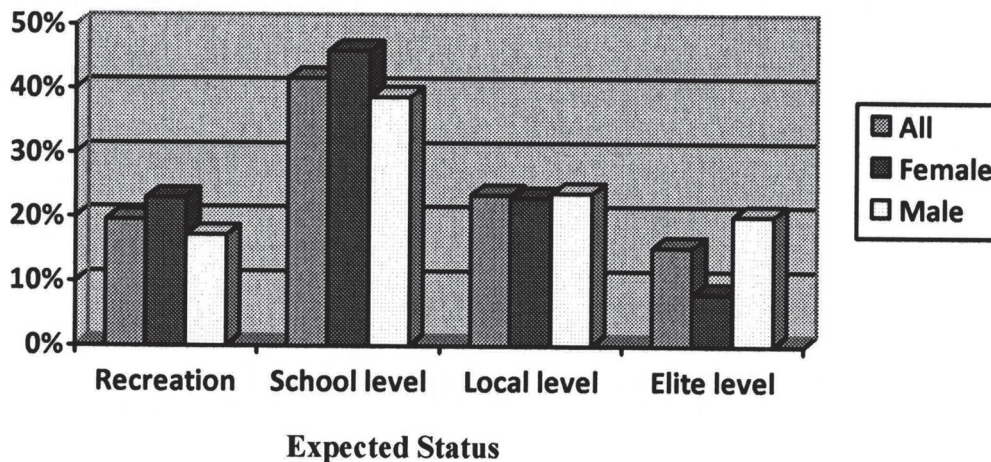
Table 2 shows more male adolescents (31.0%) than female adolescents (25.1%) expressed the interest in starting rowing activity. More female adolescents (75.2%) than male adolescents (69.7%) who are not current participating in PA had intentions to start rowing activity. Figure 1 displays about one-fifth (20.2%) of male adolescents expect to be trained to a more advance level

than the female counterparts (8.0%). The chi-square results showed a significant decline in desiring to start rowing activity while age increased. More adolescents indicated their intentions at age of 12 and their intentions was the lowest at age of 15 in female adolescents, $X^2 (6, n = 515) = 46.08, p < .001$ and male adolescents, $X^2 (6, n = 654) = 32.70, p < .001$.

Table 2. Intention to Participate in Rowing Activity and PA Participation Background.

Intention	YES			NO		
	All	Female	Male	All	Female	Male
Respondents	28.4% (n = 335)	25.1% (n = 130)	31.0% (n = 205)	71.6% (n = 845)	74.9% (n = 388)	69.0% (n = 457)
Age (Years)	13.1 ± 1.4	12.8 ± 1.4	13.3 ± 1.4	13.6 ± 1.4	13.5 ± 1.4	13.7 ± 1.3
PA Participation						
Yes	28.2% (n = 87)	24.8% (n = 30)	30.3% (n = 7)	14.1% (n = 119)	11.1% (n = 43)	16.6% (n = 76)
No	71.8% (n = 222)	75.2% (n = 91)	69.7% (n = 131)	77.9% (n = 658)	78.6% (n = 305)	77.2% (n = 131)

Figure 1. Intention to Participate in Rowing Activity with Expected Status (n = 281).



The Most Important Reasons for their Intention of Participating in Rowing Activity by Gender

Table 3 shows the percentage and the sum of scores obtained from recoding, the female and male adolescents indicate their most important reason out of the 15 choices

for their intention of participating in rowing activity are “to have fun” and “like the challenge” respectively.

Table 3. The Frequency of Stated Reasons in Percentage Scores and Sum of Percentage Scores for their Intention to Participate in a Rowing Activity.

Reasons for participation	Percentage scores			Sum of percentage scores (total score)		
	All n = 335	Female n = 130	Male n = 205	All n = 335	Female n = 130	Male n = 205
To have fun	16.5%	21.7%	13.8%	15.2% (827)	18.3% (378)	13.4% (449)
Like the challenge	15.6%	15.7%	15.6%	15.7% (849)	16.6% (342)	15.1% (507)
Learn new sport	11.9%	13.0%	11.3%	12.6% (684)	14.0% (288)	11.8% (396)
To be physically fit	11.8%	11.3%	12.0%	12.2% (663)	11.4% (235)	12.7% (428)
Like the instructor	7.9%	8.7%	7.5%	7.1% (383)	7.0% (145)	7.1% (238)
Like the equipment	7.2%	5.7%	7.9%	5.3% (290)	4.4% (91)	5.9% (199)
To compete	6.1%	7.0%	5.7%	8.0% (433)	9.2% (189)	7.3% (244)
To gain status	5.7%	4.4%	6.3%	5.6% (306)	4.4% (90)	6.4% (216)
Do something good at	4.3%	2.6%	5.2%	5.5% (297)	4.2% (86)	6.3% (211)
Support from my friends	3.4%	3.9%	3.2%	3.4% (185)	3.4% (70)	3.4% (115)
Be with friend(s)	3.3%	1.7%	4.1%	2.9% (155)	2.0% (42)	3.3% (113)
Support from my parents	3.1%	2.2%	3.6%	2.8% (152)	2.0% (42)	3.2% (110)
Support from school	1.5%	1.7%	1.4%	2.1% (114)	2.4% (49)	1.9% (65)
My family member(s) is/are participating	1.5%	0	2.3%	1.2% (68)	0.4% (8)	1.8% (60)
Others	0.2%	0.4%	0.1%	0.4% (19)	0.3% (7)	0.4% (12)
Total	100%	100%	100%	100% (5425)	100% (2062)	100% (3363)

Reasons for Not Interest to Participate in Rowing Activity by Gender

In Table 4, the most important reasons the female adolescents stated out of the 17 choices for not interest to participate in rowing activity in descending order were: 1) lack of interest; 2) poor swimming skill; 3) academic

problems; 4) not fit enough; 5) lack of confidence, while male adolescents listed 1) lack of interest; 2) poor swimming skill; 3) not fit enough; 4) academic problems; 5) time constraint as their top five reasons. After recoding, the total score showed that “lack of interest” is the top reason indicated by the male and female adolescents.

Table 4. The Most Important Reasons in Percentage Scores and Sum of Percentage Scores for Not Interest to Participate in a Rowing Activity.

Reasons for not participation	Percentage scores			Sum of percentage scores (total score)		
	All (n = 845)	Female (n = 388)	Male (n = 457)	All (n = 845)	Female (n = 388)	Male (n = 457)
Lack of interest	17.9%	18.8%	17.5%	14.7% (1753)	14.5% (814)	14.8% (939)
Poor swimming skill	11.7%	12.3%	11.3%	11.4% (1355)	11.0% (620)	11.6% (735)
Not fit enough	9.9%	9.3%	10.5%	10.7% (1280)	11.3% (632)	10.2% (648)
Academic problems	9.6%	10.1%	9.3%	9.8% (1174)	10.3% (577)	9.4% (597)
Time constraint	7.9%	6.8%	8.9%	9.7% (1161)	9.6% (537)	9.9% (624)
Lack of confidence	7.4%	7.8%	7.2%	6.8% (815)	6.9% (385)	6.8% (430)
Unlike to sun exposure	5.8%	7.1%	4.9%	6.7% (805)	7.0% (391)	6.5% (414)
Don't like outdoor event	5.7%	6.8%	4.9%	6.4% (765)	7.8% (437)	5.2% (328)
Other commitments	5.6%	4.6%	6.5%	5.4% (640)	5.6% (315)	5.1% (325)
No company	4.9%	5.1%	4.8%	5.4% (639)	5.3% (296)	5.4% (343)
Long travelling	4.1%	4.2%	4.0%	3.7% (444)	2.9% (164)	4.4% (280)
Health problems	2.5%	2.9%	2.3%	2.6% (311)	2.2% (124)	3.0% (187)
No support from family	2.5%	2.4%	2.7%	2.4% (284)	2.0% (113)	2.7% (171)
Financial constraint	2.2%	1.2%	3.1%	1.9% (228)	1.8% (103)	2.0% (125)
Others	1.0%	0.1%	0.1%	1.0% (120)	0.9% (52)	1.1% (68)
No support from school	0.8%	0.4%	1.2%	0.8% (93)	0.5% (28)	1.0% (65)
Coaches are unfriendly	0.5%	0.1%	0.8%	0.6% (71)	0.4% (23)	0.8% (48)
Total	100%	100%	100%	100% (11938)	100% (5611)	100% (6327)

Comparison between Gender Differences

A chi-square was carried out to investigate the intention of participating rowing activity with respect to gender. The results showed a significant difference between the gender related to their intention of participating rowing activity, $X^2 (7, n = 1180) = 29.25, p < .001$. Male adolescents showed stronger intention to participate in rowing than their female counterparts.

Chi-square analysis indicates there is significant difference in respect to the score of 1-min maximal rowing ergometer test in intention versus no intention among female adolescents, $X^2 (7, n = 518) = 631.94, p < .001$, and male adolescents, $X^2 (7, n = 662) = 199.29, p < .001$.

Comparison between their Intention and Scores of 1-min Maximal Rowing Ergometer Test

A t-test was carried out to examine the influence of score of 1-min maximal rowing ergometer test in relation to their intention of participating rowing activity. The results showed that the adolescents with higher score in 1-min maximal rowing ergometer test had significantly stronger intention of participating rowing activity ($t = 2.674, df = 994, p = 0.008$).

Relationship of the Effectiveness of YRDP and their Intention

A series of t-tests were performed to examine whether their level of agreements related to YRDP influencing their intention. As indicated in table 5, the female adolescents statistically have stronger intention in participating rowing activity with higher satisfaction level of the activity in “overall satisfactory level of the activity.” ($t = 7.219, df = 485, p < .001$) and higher level of agreements in “the activity was interesting.” ($t = 6.703, df = 506, p < .001$), “the activity was challenging.” ($t = 4.947, df = 505, p < .001$), “my knowledge in rowing was enhanced.” ($t = 4.937, df = 506, p < .001$),

“my interest in rowing was enhanced.” (t = 8.275, df = 504, p < .001). The results in table 5 showed that the male adolescents had statistically stronger intention of participating rowing activity with higher satisfaction level of the activity in “overall satisfactory level of the

activity.” (t = 5.656, df = 611, p < .001) and higher level of agreements in “the activity was interesting.” (t = 5.333, df = 637, p < .001), “the activity was challenging.” (t = 4.556, df = 636, p < .001), “my knowledge in rowing was enhanced.” (t = 4.810, df = 634, p < .001), “my interest in rowing was enhanced.” (t = 7.362, df = 636, p < .001).

Table 5. Relationship of the Effectiveness of YRDP and their Intention.

Intention	YES (n = 335)			NO (n = 845)		
	All Mean (SD)	Female Mean (SD)	Male Mean (SD)	All Mean (SD)	Female Mean (SD)	Male Mean (SD)
# Level of agreement for YRDP						
The activity was interesting.	4.28 (0.88)*	4.32 (0.85)*	4.26 (0.89)*	3.78 (0.92)	3.73 (0.86)	3.83 (0.97)
The activity was challenging.	4.34 (0.85)*	4.34 (0.87)*	4.33 (0.85)*	3.94 (0.93)	3.90 (0.87)	3.96 (0.98)
My knowledge in rowing was enhanced.	4.19 (0.86)*	4.18 (0.84)*	4.20 (0.88)*	3.78 (0.93)	3.74 (0.89)	3.81 (0.96)
My interest in rowing was enhanced.	4.28 (0.81)*	4.31 (0.85)*	4.26 (0.79)*	3.61 (0.97)	3.55 (0.92)	3.66 (1.01)
Overall satisfactory level of the activity.	4.39 (0.70)*	4.45 (0.56)*	4.36 (0.77)*	3.95 (0.77)	3.94 (0.72)	3.96 (0.81)

* P < .001

1 = strongly disagree/dissatisfied; 5 = strongly agree/satisfied

Discussion

The purpose of this study is to investigate the intention of adolescents to participate in rowing activity and the factors which might influence their decisions. The results of chi-square analysis showed that the desire to start rowing activity was stronger for the male adolescents, desire declined with age for both gender groups. Similar findings related to PA participation are reported by Canadian Fitness and Lifestyle Research Institute (2002) that girls are less active than boys at all ages. This gap is evident in younger school age children and widens during adolescence. This also supports the works by Sallis (2000) that PA declined with age in industrialized countries, with the steepest decline occurring between the ages of 13 and 18.

Gender differences in the stated reasons for their intention in participating rowing activity may reflect different views of male and female adolescents. In the present study, female adolescents emphasized on social benefits or enjoyment orientations like “to have fun” while male adolescents stressed on psychological enhancement or achievement orientations such as “like the challenge”. Similar issues are identified in the qualitative study conducted by O’Dea (2003) in which the most important factors motivating the participation in PA

among adolescents in Australia were fun and enjoyment of challenges. The finding is consistent with and extends the review of qualitative studies of the Allender, Cowburn and Foster (2006), in which fun, enjoyment and social support were reported as predictors of PA participation in adolescents. According to self-determination theory (Ryan & Deci, 2000), intrinsic and extrinsic motivation appear to be an important determinant of the female and male adolescents participation in rowing respectively.

A concern might be raised is more female adolescents than male adolescents who are not current participating in PA expressed interest in starting a rowing activity. Rowing is a non-traditional sport in Hong Kong. This can be explained by the findings of Orme (1991) and Mulvihill, Rivers and Aggleton (2000) that many girls were disappointed to the traditional sports offered in PE which was lack of variety. Additional support comes from the findings of Flintoff and Scraton (2001) that the non-traditional activities provided the opportunity for fun and enjoyment without competition.

It is noteworthy that interest in participating rowing activity increased with the score of the 1-min maximal rowing ergometer test. This finding is consistent with the arguments developed by Klint and Weiss (1987) and Weiss, Ebbeck and Horn (1997) that adolescents who

see themselves as physically successful in sport are motivated to continue participation for skill development and have future expectations for success in sport. Further investigation is required to identify reasons for the discrepancy of the most stated reasons between male and female who desire to participate in rowing activity.

Another important finding in this study indicates the most stated reason that “no intention in participating a rowing activity is lack of interest”. This observation supports the expectancy-value model of achievement choice as expressed by Eccles and her co-workers (1983) that children’s interpretations of their previous performance influence their goals, expectations and task specific beliefs. This result confirms with the findings by Alexandris, Tsorbatzoudis and Grouios (2002) that the dimension of “lack of interest” contributes significantly to the prediction of amotivation. This finding is contrary to many studies (Allison et al., 1999a,b; Culp, 1998; Frankish, Milligan & Reid, 1998; O’Dea, 2003; Robbins, Pender & Kazanis, 2003; Saxena, Borzekowski & Rickert, 2002; Sleaf & Wormald, 2001; Taylor, Legrand & Newton, 1999) where lack of time was reported as a major barrier to PA. It maybe not surprised to find out that, rowing is a water sport, poor swimming skill was the second most stated reason for not interested in participating rowing activity.

Some of the barriers were stated by a significantly higher percentage of female adolescents than the male counterparts such as “unlike to sun exposure” and “don’t like outdoor event”. This supports the views of Dwyer and his co-workers (2006) that the main concern for the female adolescents participating in PA was body-centered issues such as menstruation, stereotypes about femininity, and related to physical appearance. Similar issues were identified by Allender, Cowburn and Foster (2006) in which the role models for female adolescents are usually feminine such as thin, beautiful and white skin.

Conclusions and Recommendations

The present study identifies the reasons for desiring to start rowing activity. The study show that the female adolescents are enjoyment oriented, while the male adolescents are achievement orientated. Lack of interest is the most stated reason for their no interest to start a rowing activity.

Different leisure activities were stimulated by different desires (Barber, Sukhi & White, 1999). Future research should compare these results with other sports. In addition, motivations for their intention and initial participation may differ from continued participation. Further research is required to increase our understanding of their relationship.

The findings in the present study enhance our understanding in the attractions of participating in rowing activity to the adolescents, and what kind of factors that might weaken their interest. It is important to reinforce their needs for their intention, on the other hand, address these barriers in order to increase participation. For example, adjusting the contents of the promotion programme or providing various programmes that might increase the interest of the participants.

Limitations

The selected sample in the present study represented a small population of adolescents in Hong Kong, the result cannot be assumed to have external validity for all adolescents in the world.

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