UBC Social Ecological Economic Development Studies (SEEDS) Sustainability Program

Student Research Report

Recreation Gaps, Bridged? An Evaluation of UBC's Move More, Learn More Program for Female, Chinese Students

Mikayla Tinkham, Taylor McIntosh, Stefanie Johnson, Caitlin Greber, Matt Caparas

University of British Columbia

KIN 464

Themes: Health, Community, Wellbeing

April 30, 2019

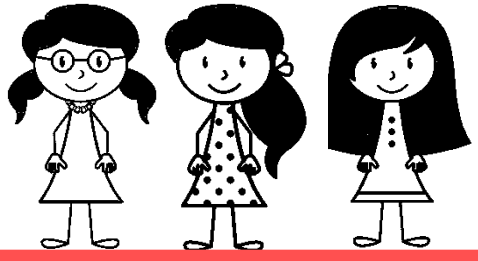
Recreation Gaps, Bridged? An Evaluation of UBC's *Move More, Learn More* Program for Female, Chinese Students

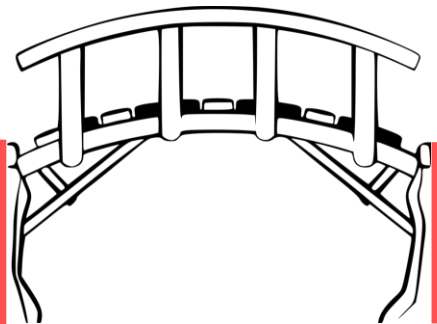
Kin 464 – Health Promotion & Physical Activity
University of British Columbia
School of Kinesiology

GROUP # 6

Mikayla Tinkham [redacted]
Taylor McIntosh [redacted]
Stefanie Johnson [redacted]
Caitlin Greber [redacted]
Matt Caparas [redacted]

Date Submitted: April 2, 2019
Professor: Negin Riazi
TA: Thalia Otamendi





Executive Summary

Recreation Gaps, Bridged? An Evaluation of UBC's *Move More, Learn More* Program for Female, Chinese Students

This investigation aimed to evaluate the University of British Columbia's (UBC) pilot program, *Move More, Learn More*, which intended to fill a necessary recreation gap and target physical activity knowledge and behaviours of domestic and international Chinese female students. This was done with the understanding that these students tend to be less active than the national average (Diep et al., 2017) and do not meet the current suggested movement guidelines (World Health Organization, 2015). Specifically, this evaluation aimed to assess the success of *Move More, Learn More*'s current promotional strategies and identify the primary motivators and barriers to program participation for both Chinese female domestic and international students. This was done through the distribution of an online, secure survey through both digital and in-person efforts. Digital recruitment involved sharing the survey link and an accompanying description to various UBC affiliated Facebook pages. In-person recruitment was directed towards rectifying ratios of domestic versus international student responses, and involved approaching Chinese females living in the Fairview Crescent residence on UBC campus. The survey covered demographic questions, inquiries into current health behaviours, motivators, barriers, and probes regarding interest and awareness surrounding *Move More, Learn, More*. The nine-day recruitment period resulted in 18 completed surveys, with 11 domestic and 7 international responses.

The multiple choice or "select all that apply" responses were recorded, tallied and converted to percentages. The open response questions were reviewed with content analysis, which found that the majority of domestic and international respondents did value physical activity. However, many failed to meet the recommended World Health Organization guidelines of 60 minutes of moderate-vigorous exercise three days per week, as our data displayed a mean of 2.18 ± 1.5 days (domestic) and 1.33 ± 0.5 days (international). Both groups primarily exercised in a gym or outdoor setting and the largest barrier towards physical activity was found to be time. However international students also struggled with a lack of exercise knowledge, whereas domestic students found location and money to be obstacles. Both groups were similarly motivated to exercise by health, physical appearance and enjoyment. No participants had heard of *Move More, Learn More* prior to taking the survey. Upon being provided a description of the program, 9% of domestic and 43% of international respondents expressed definite interest in participation. Content analysis revealed that domestic students were drawn to the program as a means of additional exercise opportunity, but deterred by the time commitment and satisfaction with their current exercise knowledge. Contrastingly, international students were drawn to the program due to both its educational and exercise components, but were still deterred by the time commitment.

These findings lead to the recommendations of enhancing promotion of *Move More, Learn More* through social media, expanding the exercise components to include more gym exercise and education, and potentially directing program recruitment efforts to primarily international students, if the program were to remain in its current state.

Literature Review

Physical activity has been shown to be an important aspect to daily living due to several health benefits, which include improved mental health and enhanced management of conditions such as high blood pressure, heart disease and premature death (ParticipACTION, 2018; World Health Organization, 2015). The World Health Organization (WHO) recommends that adults between the ages of 16 to 64 partake in 150 minutes of moderate to vigorous physical activity per week, in bouts of 10 minutes or more (2015). Such activities may include walking, dancing, gardening, hiking, swimming or any form of active transportation (Physical Activity and Adults, 2015). Despite these guidelines and health benefits, only 20% of Canadians are meeting the proposed movement standards for physical activity (ParticipACTION, 2018). Furthermore, the Chinese-North American population has been shown to be one of the least active subgroups, when compared to other ethnicities (Diep et al., 2017). This is of particular concern as Chinese-North Americans comprise one of the largest and fastest growing subgroups in Canada and the United States (Diep et al., 2017).

Research done by Diep et al. (2017) noted numerous potential motivators and barriers that the Chinese population experiences, which may be a contributor to their higher levels of inactivity. This study identified Chinese parents' primary concerns as being their children's safety and academic achievements, which may promote sedentary behaviours such as studying at a desk or playing indoors. It was also highlighted that the cultural norm of conservatism can impede physical activity due to reservations towards certain sporting uniforms or towards sports with "aggressive" behaviours. Another study emphasized that difficulties in accessing program information and a lack of cross-cultural fitness program content could also be contributing barriers (Yan & Cardinal, 2013). Additionally, an intersection between gender and race can be identified as a large portion of the Chinese population does not perceive physical activity to fit the stereotypical image of an ideal Asian woman (Diep et al., 2017). In fact, it has been noted that females of all ethnicities tend to be less physically active than their same-aged male peers due differences in physical activity motivators (Macdonald & Thomson, 1992). Females tend to be motivated to exercise in order to avoid "negative consequences" such as ill health or perceived undesirable physical appearance, rather than for enjoyment (Egli, Bland, Melton & Czech, 2011). On the other hand, males are motivated to be physically active for competition and pleasure (Egli et al., 2011). For these reasons, Chinese females tend to be even less active than Chinese males.

It is also notable that Chinese individuals who are newly introduced to North American culture display similar tendencies towards inactivity (Yan & Cardinal, 2013). A study done by Yan and Cardinal (2013) identified female Chinese international students as being one of the least physically active groups in the United States. In an attempt to understand this trend, they conducted several interviews in Mandarin and translated the results to English in the hopes of identifying barriers that this group faces. From these interviews, barriers to leisure physical activity such as "a lack of time, low self-efficacy, limited social support, cultural barriers and a lack of 'how-to' information" were revealed to be common themes (Yan & Cardinal, 2013, pp. 384). As a result, it was recommended that university campuses with large or growing populations of FCIS should

increase accessibility to information and add more cross-cultural content to their fitness classes and programs.

Organizations such as ParticipACTION (2018) have attempted to counter sedentary lifestyles by promoting activities and programs such as the "Teen Challenge" and "UpnGo". These programs are designed to target healthy behaviour promotion and physical activity to teens, students and young working adults. Lifestyle choices made in these age frames can have a large influence on future behaviours and impact the individual's health for the remainder of their lifespan (Telama, Yang, Laakso & Viikari, 1997). However, these initiatives may not be able to effectively reach the vulnerable subgroups like Chinese, female, young adults. UBC has aimed to address this cultural gap by conducting a six-week program, *Move More, Learn More,* targeted towards female Chinese students. This program will be formatted as a classroom-style learning opportunity paired with group physical activity classes. The program also provides one free drop-in group exercise class per week at the on-campus Student Recreation Center (SRC). The aim of *Move More, Learn More* is to remove barriers and promote knowledge surrounding the benefits of physical activity.

This project was initiated with the understanding that approximately 37% of UBC's undergraduate population identify as Chinese, with 15% of these being international students (UBC Overview & Facts, n.d.). As this program is currently being implemented, it is of interest to see if it effectively aids and engages with female Chinese students of both international and domestic origins. Hence, the population of interest for this investigation is domestic and international Chinese students who did not participate in the program. For the purposes of this paper a domestic student is defined as a citizen or permanent resident in the country of their attended post-secondary institution. An international student is defined as a citizen of a country different from the one resided in for study. This evaluation will assess the success of *Move More, Learn More's* current promotional strategies and identify the primary motivators and barriers to program participation for each subgroup.

Methods

In order to meet the objectives of this investigation, a self-report survey was administered through *Qualtrics,* a secure online platform. The online platform reduced scenarios of possible judgement and encouraged participants to answer honestly. This approach alleviated potential response bias that could have been encountered from participants exaggerating or lying about their activity levels in order to be perceived more positively by those administering the survey. Furthermore, the survey collected no personal identification information and had no means to link responses to specific individuals. Prior to beginning data collection, it was speculated that a low response rate could impose limitations for developing meaningful trends and findings during data analysis. In order to counter this potential challenge, the survey was paired with a description (Image 1.1) which emphasized that participation would allow students to voice their opinions and provide recommendations surrounding physical activity gaps on campus. It was expected that this

emphasis would provide increased motivation to complete the survey as participants would be aware that they could benefit from healthy programs developed from their recommendations.

It was initially determined that the online survey would be most effectively distributed by posting the link to various Facebook group pages. We initially targeted two main Facebook pages: the Chinese Varsity Club (CVC) and the UBC Exchange Student Club. The CVC is a club designed primarily for Chinese UBC students to connect with one another for various social activities and events. Despite the label "varsity", the club has no ties to varsity athletics. The Exchange Student Club serves as a hub to connect exchange and international students with others attending UBC who are not defined as domestic. These two Facebook pages were selected with the assumption that they would both include many members who currently identify as either domestic or international Chinese, UBC students. This assumption was supported by a report outlining approximately 15% of exchange students and 37% of domestic students at UBC identify as Chinese (UBC Overview and Facts, n.d.).

The recruitment process commenced when the survey link, and the accompanying survey descriptions, were posted to both of the aforementioned Facebook pages on March 5, 2019. Challenged by a limited number of responses, the survey link was also shared on the Facebook pages of the Science Undergraduate Society, Fairview-Fraser Residence Hall, Hong Kong Student Association, Phi Delta Epsilon Pre-Medical Fraternity, and UBC Textbook Exchange. Five days after the initial posting, the link was re-posted to each page in order to provide a reminder and a secondary opportunity for students to participate. This process was planned to continue until a minimum of seven responses had been recorded (identified as the minimum requirement for this assessment). However, it was preferable to accumulate a greater number of responses, and therefore we aimed for upwards of 20 surveys to be completed. After a one-week period had passed, the number of responses surpassed our minimum requirement, however there was a higher number of domestic responses than international. As this would challenge our ability to make meaningful comparisons, we implemented an additional recruitment strategy to increase the number responses and rectify this inequality. Two group members, who live in the Fairview Crescent residence, knocked on fellow residents' doors, introduced themselves, and inquired if there were any residents who identified as international Chinese female students. If any individuals fit this category, they received a verbal explanation (identical to that which accompanied the online survey link - Image 1.1) and were asked if they would be willing to complete the short survey. The link was then sent to willing participants via email or text and the group members left as to not pressure participants while completing the survey. This method proved to be effective as it resulted in five additional responses from international students. The survey link was left active for an additional two days and then taken down, totalling a 11-day data collection period.

Prior to commencing the survey, students were presented with an online consent form outlining the study's purpose, procedures, outcomes, confidentiality, risks, and contact information (Image 2.1). Contact information was provided on the consent form for participants in the event that they required further information or wished to file a research ethics complaint. It was assumed that participants who provided consent had adequate time to make an informed

decision to participate as the form had no time constraint. All completed consent forms will be filed and stored for a one-year period. After consenting, the participants began the survey which took a maximum time of ten minutes to complete and had an average completion time of five minutes. In order to mitigate additional challenges due to language barriers, questions were written with straightforward colloquial English in an attempt to make the survey more accessible for all. Survey questions assessed three major areas. The first set of questions established the participants' basic demographic information (Image 3.1). This was to determine if respondents fit the description criteria required for this evaluation, as well as to distinguish between international and domestic students. These questions covered topics of ethnicity, gender, sex, faculty of study, and student status. The questions then transitioned to a secondary portion which inquired into the general health behaviours, motivators, barriers and values of the participants (Image 3.2). This information was of interest as the target population of *Move More, Learn More* is female Chinese students who demonstrate low and inconsistent levels of participation in physical activity. Additional insight into current health behaviours, motivators and barriers provided ideas for potential program modifications. These first two sections of the survey took on a multiple choice or "select all that apply" format in order to maximize the willingness of participants to complete the survey. The third portion of the survey addressed questions surrounding the program itself (Image 3.3). These included inquiries into program awareness and interest, in addition to perceived positive elements and critical recommendations for *Move More, Learn More*. The positives, negatives, and specific barriers to participation in the program were presented in a written response question format to allow for individual expression and novel feedback.

Upon the completion of data collection, the analysis consisted of quantifying survey responses, comparing trends and selecting the best means of representing the results. All responses that were incomplete or did not match the descriptors of Chinese female students currently studying at UBC were excluded from the analysis. The responses were divided in two groups: domestic students and international students. These were then analyzed, tallied and standardized (converted to percentages) in order to establish similarities and differences between both subgroups of students. Bar graphs were selected to display the different faculties of students, the mean number of days that participants were active for at least 60 minutes, overall interest in partaking in the *Move More, Learn More* program and the best perceived promotional strategies, such as Facebook, email or posters. Reported motivators and barriers to physical activity, preferred modes of exercise, and eating behaviours were recorded as percentages in tables. Content analysis was used to identify major themes of interest and disinterest in the program from the participants' long answer responses. All other results, including demographic responses, are reported as descriptive statistics. Please see the findings section to view the data analysis and the appendix (Table 1.1) for the raw data.

The objective of collecting and analyzing data in this manner was to obtain additional knowledge as to why the Chinese female population tends to be less active than other subgroups, and to examine if the responses from UBC students differed from that of the current literature.

Furthermore, we hoped to examine the effectiveness of *Move More, Learn More's* promotion for their program.

Findings

An analysis was completed based on responses from 18 female UBC students who self-identified as Chinese. The responses from domestic female Chinese students (n=11) were compared to those students who identified as international female Chinese students (n=7). In order to compare and contrast responses between the groups, data was normalized by converting response frequencies to percentages of total responses for each group.

All analyzed surveys had 100% of respondents identify as current UBC students, female and Chinese and therefore met the criteria of the target population for *Move More, Learn More*. The respondents belonged to a variety of faculties (Figure 1.1), which made for a diverse and representative sample. All of the participants agreed with the definition of physical activity provided in the survey (Image 1.2) and considered it to mirror how they personally defined the term. Upon comparing responses from domestic and international students, it was found that physical activity was considered to be more important to the domestic respondents (72%) versus the international demographic (42%). Despite a vast majority of participants reporting that physical activity was very or somewhat important to them (Table 2.1), both groups reported a mean number of active minutes below that of the WHO guidelines. Domestic students reported an average 2.18 +/- 1.5 days with 60 active minutes or more, while international students reported 1.33 +/- 0.5 days with 60 minutes or more (Figure 1.2).

The most common settings of exercise were found to be a gym/fitness center for 64% of domestic students, and a gym or outdoors for international students (57% each). Other forms of exercise for domestic students included outdoor activities (45%), group exercise classes (27%), organized sport (27%), and other (9%). Methods of exercise for international students, on the other hand, included exercise classes (29%) and other activities (29%). It is interesting to note that none of the international respondents chose organized sport as their method of exercise (Table 2.2).

The most common motivator for domestic students to exercise was found to be health benefits and maintenance (100%) (Table 4). This was followed by other motivators, namely friends/peers, appearance, and enjoyment each with a 64% response rate, and competition at 9%. Similarly, the most common motivator for international students to exercise was also found to be health benefits at a rating of 71%. This was followed by appearance (57%), enjoyment (43%), and friends (29%). It is interesting to note that none of the international students chose competition as a motivator (Table 2.3). Time was the most common barrier reported among both groups, however there are additional barriers in which the domestic and international populations differed (Table 2.4). The domestic population commonly reported that money was also a cause for lack of engagement in physical activity (45%). This differed from the international student population in which no one reported finances as being an obstacle to activity. However, 71% of international students did highlight a lack of knowledge surrounding physical activity as a barrier.

In order to gain further insight about the health of the students partaking in the survey, their healthy eating behaviors were also considered (Table 2.5). On average, 42% of the international student responses indicated they believed that they ate healthy foods the majority of the time. This was similar to the domestic students where 36% perceived their lifestyle to consist of habitually eating healthy foods. Additionally, it was found that 55% of domestic and 42% of international students reported not always consuming healthy foods despite purposeful attempts. The remainder of the students responded indicating that they did not currently eat or attempt to eat a healthy diet.

UBC's *Move More, Learn More* program had not been heard or brought to the awareness of 100% of the individuals participating in the survey. After providing a brief outline of the program, the participants were asked if they would be interested in partaking in the future. The responses from this question varied greatly between international and domestic students (Figure 1.3). On average, the international students showed more interest (42%) in the program than domestic students (9%). Students reporting no interest in the program were recorded at 55% for domestic compared to only 28% of international students. Suggested promotional strategies for *Move More, Learn More,* were gathered in order to establish effective promotional strategies for the future (Figure 1.4), with social media perceived as being the most effective by both groups.

Discussion

The results gathered can be used to evaluate and inform *Move More, Learn More*. While the findings of this investigation point to several similarities between the identified subgroups, they also highlight some key differences. This is of particular interest in order to identify components of the program that are compatible with both subgroups, and which areas may require modifications. Based on survey responses, *Move More, Learn More* could pose as a solution to the large gap between values and current physical activity realities. The majority of participants from both subgroups reported that physical activity was either "important" or "somewhat important" to them, yet the mean number of days in which participants engaged in 60 minutes of moderate to vigorous activity fell below three days per week for both groups. The mean values are consistent with the low numbers of Chinese females that attain the Daily Physical Activity guidelines noted in other studies and sources of literature (ParticipACTION, 2018; WHO, 2015). Food behaviours reported between the two subgroups were also similar, although less than 50% of respondents from each group believed that they consistently ate "healthy foods the majority of the time". This is significant as all participants hold a personal definition and knowledge of what "healthy food" is, but either do not consider it important or struggle to adhere to their ideal way of eating. This could be significant for the education portion of *Move More, Learn More* to touch upon the benefits of a balanced diet and assist with the adherence to one.

The most popular method of partaking in physical activity for both groups was reported to be within a traditional gym setting, followed by outdoor activities. Only 27% of domestic and 29% of international students choose to regularly engage in physical activity via exercise classes. *Move More, Learn More*'s exercise component takes the form of a formal exercise class and the program

advertises that participants will receive one free group fitness class, of their choice, per week at the UBC SRC. As a result, there appears to be a disconnect between the preferred modes of exercise for potential participants and those being offered by the program.

The main motivators for both subgroups to partake in physical activity were reported as health benefits, appearance and enjoyment. The first two motivators align with current literature. However, our finding regarding enjoyment as a draw to activity is relatively unique when compared to other studies, which did not find this to be a common female motivator (Egli et al., 2011). Only domestic students reported friends as being a significant motivator for participation. This trend is potentially due to international students entering UBC without a pre-existing local friend group and therefore have the potential to feel more comfortable partaking in solitary tasks. The lack of friends as motivators may also stem from some international respondents belonging to a culture that does not regard exercise to match with the image of an ideal Asian female, and therefore might try to avoid settings of potential peer judgement (Diep et al., 2017).

Domestic students indicated time as their largest barrier to exercise, with over 90% reporting this as an obstacle. Further notable barriers to exercise for this group were money and proximity to physical activity locations; however, with *Move More, Learn More* costing $25/person for 6 weeks and located on campus, these barriers are unlikely to deter participation from the program. Confidence was not found to be a barrier for either subgroup despite being found by other studies (Diep et al., 2017). The two largest challenges reported by international students were time and a lack of exercise knowledge. This suggests that *Move More, Learn More's* educational component may be more suited to international students than domestic, and provides a potential explanation as to why international students indicated interest almost four-fold of domestic students. This explanation is further supported by the written responses from participants indicating reasons for their interest or disinterest in *Move More, Learn More*. A content analysis of the responses revealed that a common draw to the program for international students was the education and encouragement that would be provided. Alternatively, domestic students reported disinterest as they were, on average, satisfied with their current level of health knowledge. Both subgroups had multiple respondents note that they believed that the time commitment of attending *Move More, Learn More* twice a week, for 2 total hours was a deterrent to participation.

None of the respondents had heard of *Move More, Learn More* prior to taking the provided survey, despite being connected to UBC through faculties, clubs and/or residences. This speaks to a need for more compelling promotional strategies in order for the program to reach the targeted audience more effectively. The majority students that responded to the survey believed that the best promotional strategy to reach a large audience of students would be through social media platforms and UBC Recreation advertisements. Currently, promotion appears to be limited to the UBC Recreation website and Facebook posts by UBC Kinesiology and UBC Fairview-Fraser Residence Association. However, respondents from both the Faculty of Kinesiology and from Fairview residence still indicated that they had not heard of the program.

A limitation to this investigation was the relatively low number of survey responses. Despite exceeding the minimum number set by the project guidelines, it is predicted that a larger number

of responses would have provided a more accurate insight into the similarities and differences between the subgroups. It is possible that there may be trends currently present which would become insignificant or magnified with more responses. This is especially pertinent for the open-ended questions which involved content analysis, as more responses would have affirmed that the concluded draws and deterrents to participation were actually felt by a majority of students. Future studies could be improved with a longer recruitment period and approval from ethics to provide material incentive for those who fill in the survey, in the hopes that this would increase survey completion. The distribution approach for surveys could also be modified from primarily online to primarily in-person, in order to assist in increasing response rates. The above changes would address the challenge of adequate recruitment for this study, although it would require more time to be spent actively seeking respondents. It is recommended that this study be repeated in this manner in order to affirm results.

Despite the aforementioned limitations and challenges, this investigation assisted in filling a current gap in literature. From our knowledge, this is the first study to examine the appeal and knowledge of a program designed to reduce recreation gaps for domestic and international female Chinese students. As such, UBC can apply these findings to their current and future programs in order to provide a positive effect upon this population's physical activity behaviours. A direction for future studies would be to construct descriptions of alternative variations of *Move More, Learn More,* such as a program for only international Chinese students or a program with only exercise components. This would then be distributed to students to determine if interest would increase depending on program modification. Another avenue of research could examine the real-world effectiveness of the best promotional strategies for *Move More, Learn More* that were established within this study. It is also of interest to see if the same trends and responses to the program would emerge at different university campuses or with different racial groups.

Recommendations

In order to build upon the existing draws of *Move More, Learn More* and to further ensure success in achieving this program's goals, three main recommendations have stemmed from this investigation. The first recommendation is to increase promotional materials and advertising. This emphasizes the priority and importance of dispersing program information to the targeted audience. Although the survey responses were limited, none of the 18 respondents had any prior knowledge regarding the *Move More, Learn More* program. In order to successfully improve the activity status of Chinese females, the targeted group needs to be aware of the initiative and opportunity. From the survey responses, it was identified that participants believed advertising and promotion on social media and through UBC Recreation would be the most effective. As previously mentioned, advertisements appeared to be limited to the UBC Recreation website and Facebook posts by UBC Kinesiology and resident housing groups with mainly international students. It is our recommendation to diversify and expand the number of Facebook groups that share information regarding the program, in addition to involving other media platforms such as

Instagram and Twitter. Furthermore, it may be a more effective use of resources to post on pages other than UBC Kinesiology or UBC Recreation, as their followers are likely more educated regarding the importance of physical activity or already engage in exercise.

The results indicated that majority of non-participants currently engage in modes of physical activity that do not include group fitness classes. To accommodate for this, our second recommendation is that more physical activity options should be included in both the education and activity sessions, with an emphasis put upon gym-based solo exercise. This is due to the fact that both subgroups indicated that traditional gym method was their most prominent mode of physical activity. A modification could include expanding the weekly one session group fitness pass at the SRC to also include one free gym entry. This would ideally be accompanied by education within the group sessions involving safe lifting technique, equipment orientations and basic exercises. By adding this education and drop-in option there may be increased interest and engagement for potential program participants. Participants would have the opportunity to apply their new classroom knowledge, and return the following week for further education and to ask questions. Furthermore, the flexibility afforded by this recommendation could help minimize the most common barrier to participation in the *Move More Learn More* - time. If the program maintains the existing group classroom and exercise session schedule, but adds a solo workout option, it will enable participants to be physically active without needing to account for the set schedule and time commitment of group exercise classes. Another benefit is that participants may become more accustomed to exercising in a manner that will more closely mimics their lives once the program ends. Ideally this will result in higher levels of engagement and satisfaction with the program, and translate into behaviours that assist participants in meeting the Activity Guidelines set by WHO (2015). However, it should be noted that exercising in groups with support is found to have higher levels of adherence to exercise and lower levels of stress while exercising. (Plante, Coscarelli, & Ford, 2001; Wing, & Jeffery, 1999). Therefore, group workouts should not be omitted from the program format.

Finally, it is recommended that if the program does not adopt any modifications, then it should direct its focus towards international students. From the survey responses, it is recognized that most domestic students are not interested in the program as they perceive their knowledge to be adequate for a healthy lifestyle. Additionally, domestic students were found to exercise almost twice as much as the international students. This indicates that the largest recreation gap and shortcoming exists within Chinese international female students, and that this subgroup should be considered independently from their domestic peers. These factors contribute to the recommendation to shift the target of this program to international students or to modify the program using some of the aforementioned suggestions, in order to better suit the interests of the domestic subgroup as well. As previously stated, our survey results were limited by the number of responses and the basis for these recommendations may not apply to the general population of domestic and international Chinese female students.

References

Diep, C. S., Leung, R., Thompson, D., Gor, B. J., & Baranowski, T. (2017). Physical activity behaviors and influences among Chinese-American children aged 9-13 years: A qualitative study. *Journal of Immigrant and Minority Health, 19*(2), 358-366.

Egli, T., Bland, H. W., Melton, B. F., & Czech, D. R. (2011). Influence of age, sex, and race on college students' exercise motivation of physical activity. Journal of American College of Health, 59(5), 399-406

McDonald, K., & Thompson, J. K. (1992). Eating disturbance, body image dissatisfaction, and reasons for exercising: Gender differences and correlational findings. International journal of eating disorders, 11(3), 289-292.

ParticipACTION. (2018). Retrieved from https://www.participaction.com/en-ca/benefits-and-guidelines/adults-18-to-64

Physical Activity and Adults. (2015). Retrieved from https://www.who.int/dietphysicalactivity /factsheet_adults/en/

Plante, T. G., Coscarelli, L., & Ford, M. (2001). Does exercising with another enhance the stress reducing benefits of exercise?. *International Journal of Stress Management*, *8*(3), 201-213.

Telama, R., Yang, X., Laakso, L., & Viikari, J. (1997). Physical activity in childhood and adolescence as predictor of physical activity in young adulthood. American journal of preventive medicine, 13(4), 317-323.

UBC Overview & Facts. (n.d). Retrieved from https://www.ubc.ca/about/facts.html

Wing, R. R., & Jeffery, R. W. (1999). Benefits of recruiting participants with friends and increasing social support for weight loss and maintenance. *Journal of consulting and clinical psychology*, *67*(1), 132.

World Health Organization. (2015). *Global recommendations on physical activity for health*. Retrieved from https://www.who.int/dietphysicalactivity/factsheet_recommendations/en/

Yan, Z., & Cardinal, B. J. (2013). Perception of physical activity participation of Chinese female graduate students: A case study. *Research quarterly for exercise and sport*, *84*(3), 384-396.

Appendix

Image 1.1 – Accompanying Survey Description: this write up was attached to each survey link shared to UBC Facebook pages and was the script followed for in-person recruitment

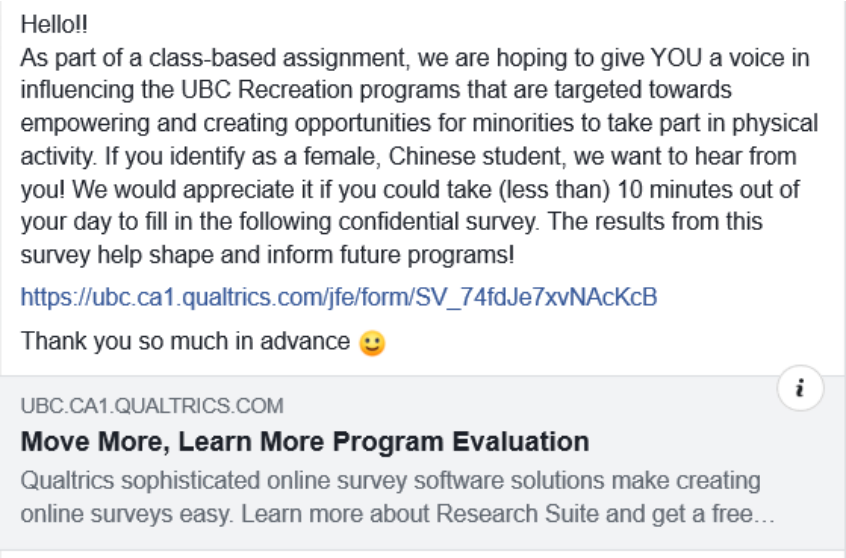


Image 2.1 - Consent Form: All participants were required to consent prior to completing the survey.

Consent Form KIN 464: Health Promotion and Physical Activity
Participant Consent Form for Class-based Projects

Principal Investigators: Negin Riazi (PhD Candidate, School of Kinesiology, Faculty of Education)

The purpose of the class project: To gather knowledge and expertise from community members on topics related to physical activity, recreation, and health promotion.

Study Procedures: With your permission, we are asking you to participate in this survey. Responses will be recorded and viewed by the students involved in the study. With the information gathered, students will critically examine how different individuals understand or engage in health promoting activities or health promotion initiatives.

Project outcomes: The information gathered from survey questions will be part of a written report for the class project. The written report will be shared with the community partners involved with the project. Summaries of findings will also be posted on the following websites. No personal information/information that could identify participants will be included in these reports.

UBC SEEDS Program Library: https://sustain.ubc.ca/courses-degrees/alternative-credit-options/seeds-sustainability-program/seeds-sustainability-library

Potential benefits of class project: There are no explicit benefits to you by taking part in this class project. However, the survey will provide you with the opportunity to voice your opinion on your experiences with health promoting activities or initiatives in a broad sense and will provide the students with an opportunity to learn from your experiences.

Confidentiality: Maintaining the confidentiality of the participants involved in a survey is paramount, and no names will be asked for. At the completion of the course, all data (i.e. notes) and consent forms will be kept in a locked filing cabinet in Negin Riazi's office in the Population Physical Activity Lab (2259 Lower Mall) at the University of British Columbia. All data and consent forms will be destroyed 1 year after completion of the course.

Risks: The risks associated with participating in this research are minimal. There are no known physical, economic, or social risks associated with participation in this study. Although there is a schedule of questions, you are free to share what they would like, including refusing to answer specific questions. You should know that your participation is completely voluntary and you are free to withdraw from the survey and there will not be negative impacts related to your withdrawal. If you withdraw from the study, all of the information you have shared up until that point will be destroyed.

Contact for information about the study: If you have any questions about this class project, you can contact Negin Riazi by phone at 604-822-5288 or by email at negin.riazi@ubc.ca

Research ethics complaints: If you have any concerns or complaints about your rights as a research participant and/or your experiences while participating in this study, contact the Research Participant Complaint Line in the UBC Office of Research Ethics at 604-822-8598 or e-mail RSIL@ors.ubc.ca or call toll free 1-877-822-8598.

Consent: Your participation in this study is entirely voluntary and you may refuse to participate or withdraw from the study at any time. By answering the following survey questions, you are indicating that you are providing consent to participate in this study.

- ○ I consent, begin the study
- ○ I do not consent, I do not wish to participate

Image 3.1: Demographic Survey Questions

Are you a current student at The University of British Columbia (UBC)?

- ○ Yes
- ○ No

Are you an international student (a citizen of a country different from the one resided in for study) or domestic student (a citizen or permanent resident of Canada)?

- ○ International
- ○ Domestic

What faculty are you in at UBC?

- ○ Arts
- ○ Science
- ○ Sauder
- ○ Applied Science
- ○ Land and Food Systems
- ○ Kinesiology
- ○ Forestry
- ○ Other

What gender do you identify with?

- ○ Female
- ○ Male
- ○ Other
- ○ Prefer not to answer

What ethnicity/ethnicities do you identify with?

- ☐ Asian
- ☐ Latino/Hispanic
- ☐ Black
- ☐ Arab
- ☐ First Persons
- ☐ Caucasian/European
- ☐ Other

If you selected Asian, do you identify as Chinese?

- ○ Yes
- ○ No
- ○ I don't identify as Asian

Image 3.2 - Health Behaviours, Motivators and Barrier Survey Questions

Physical activity is any body movement that works your muscles and requires more energy than resting. A few examples of physical activity include walking, running, dancing, swimming, yoga and gardening. Does this definition match how you define physical activity?

- ○ Yes
- ○ Somewhat
- ○ No

Is physical activity important to you?

- ○ Yes
- ○ Somewhat
- ○ No

How many days per week do you typically partake in moderate to vigorous physical activity for 60 minutes or more?

- ○ 0
- ○ 1
- ○ 2
- ○ 3
- ○ 4
- ○ 5
- ○ 6
- ○ 7

How do you most commonly engage in physical activity?

- [ ] Gym
- [ ] Outdoor Activities (running, biking, gardening, walking, etc.)
- [ ] Exercise Classes (spin, aquafit, yoga, boot-camp, etc.)
- [ ] Organized Sport (varsity, intramurals, rec league, community team, etc.)
- [ ] Other

What motivates you to be physically active?

- [ ] Health
- [ ] Friends/peers
- [ ] Competition
- [ ] Physical appearance
- [ ] Enjoyment
- [ ] Other

Do you believe any of the following prevent you from being physically active?

- [ ] Time constraints
- [ ] Money
- [ ] Confidence
- [ ] Knowledge surrounding exercise
- [ ] Location relative to fitness centers
- [ ] Language barriers
- [ ] It's not a priority to me
- [ ] Other

Do you believe that you eat healthy foods the majority of the time?

- ○ Yes
- ○ No, but I make an effort
- ○ No

Image 3.3: *Move More, Learn More* Program Inquiry Survey Questions

Move More, Learn More is a 6-week program catered to Asian-females that teaches about physical activity and health, with the goal of providing the skills and confidence to get active and improve participants' physical and mental well-being. Meetings are twice a week, one focused on health education and the other with private group activities. Would you be interested in participating in this?

- ○ Yes
- ○ Maybe
- ○ No

Please explain your reasons for interest or your lack of interest in Move More Learn More.

Had you heard about Move More, Learn More program prior to taking this survey?

- ○ Yes
- ○ No

If you had heard of Move More, Learn More how did you learn of it?

- ○ Facebook
- ○ Poster
- ○ Friend/peer
- ○ Website
- ○ UBC Rec
- ○ I have not heard of Move More, Learn More

What do you believe would be the best way(s) to promote Move More, Learn More to a large population of students?

- ☐ Social media
- ☐ UBC Rec advertisements/promotions
- ☐ Posters
- ☐ Booth
- ☐ Student ambassadors
- ☐ Other

Table 1.1 - Survey Responses

Survey Respondent	Survey Responses
1	I consent, begin the study 1) Yes 2) Domestic 3) Science 4) Female 5) Asian 6) Yes 7) Yes 8) Yes 9) 3 10) Gym, Organized Sport 11) Health, Friends/peers, Physical Appearance 12) Time constraints 13) No, but I make an effort 14) No 15) I am confident in my exercise regimen 16) No 17) I have not heard of Move More, Learn More 18) Social media, UBC Rec advertisements

2	I consent, begin the study 1) Yes 2) Domestic 3) Kinesiology 4) Female 5) Asian 6) Yes 7) Yes 8) Yes 9) 4 10) Gym, Outdoor Activities, Exercise Classes, Organized Sport 11) Health, Enjoyment 12) Time constraints, Location 13) Yes 14) Maybe 15) Mostly the mental health side 16) No 17) I have not heard of Move More, Learn More 18) Social media, Student Ambassadors
3	I consent, begin the study 1) Yes 2) Domestic 3) Science 4) Female 5) Asian 6) Yes 7) Yes 8) Somewhat 9) 1 10) Exercise Classes 11) Health, Friends/peers, physical appearance 12) Time constraints, Money, Knowledge surrounding exercise, It's not a priority 13) No, but I make an effort 14) No 15) Not a priority 16) No 17) I have not heard of Move More, Learn More 18) Social media

4	I consent, begin the study 1) Yes 2) Domestic 3) Kinesiology 4) Female 5) Asian 6) Yes 7) Yes 8) Yes 9) 1 10) Gym 11) Health, Friends/peers, Physical appearance, Enjoyment 12) Time constraints, Money 13) No, but I make an effort 14) No 15) I feel like my knowledge of exercise is extensive however my current schedule doesn't allow me to be as physical active as I would like 16) No 17) I have not heard of Move More, Learn More 18) Social media, UBC Rec advertisements/ promotions, Posters, Booth, Student ambassadors
5	I consent, begin the study 1) Yes 2) Domestic 3) Sauder 4) Female 5) Asian 6) Yes 7) Yes 8) Somewhat 9) 1 10) Outdoor Activities 11) Health 12) Time constraints, Money, Confidence, It’s not a priority for me 13) No 14) Maybe 15) Due to my busy schedule, I'm not sure if I can make it to the meetings consistently. 16) No 17) I have not heard of Move More, Learn More 18) Social media, UBC Rec advertisements/ promotions, Posters

6	I consent, begin the study 1) Yes 2) International 3) Science 4) Female 5) Asian 6) Yes 7) Yes 8) Somewhat 9) 1 10) Gym, Exercise Classes 11) Health, Friends/peers, Physical appearance 12) Time constraints, Knowledge surrounding exercise 13) No, but I make an effort 14) Maybe 15) Time commitment 16) No 17) I have not heard of Move More, Learn More 18) Social media, UBC Rec advertisements/ promotions, Posters, Booth, Student ambassadors
7	I consent, begin the study 1) Yes 2) Domestic 3) Arts 4) Female 5) Asian 6) Yes 7) Yes 8) Yes 9) 3 10) Gym, Exercise Classes 11) Health, Friends/peers, Physical appearance 12) Money, Location 13) No, but I make an effort 14) No 15) I am more comfortable going to the gym/learning with peers 16) No 17) I have not heard of Move More, Learn More 18) Social media, UBC Rec advertisements/ promotions, Student ambassadors

8	I consent, begin the study 1) Yes 2) Domestic 3) Arts 4) Female 5) Asian 6) Yes 7) Yes 8) Somewhat 9) 0 10) Outdoor Activities 11) Health 12) Time constraints, Confidence, Knowledge surrounding exercise 13) No, but I make an effort 14) Maybe 15) Sounds like a lot of work 16) No 17) I have not heard of Move More, Learn More 18) Social media
9	I consent, begin the study 1) Yes 2) International 3) Arts 4) Female 5) Asian 6) Yes 7) Yes 8) No 9) 1 10) Outdoor Activities 11) Friends/peers 12) Confidence, It's not a priority for me 13) No 14) No 15) Not interested in physical activity 16) No 17) I have not heard of Move More, Learn More 18) Social media, UBC Rec advertisements/ promotions, Posters

10	I consent, begin the study 1) Yes 2) Domestic 3) Applied Science 4) Female 5) Asian 6) Yes 7) Yes 8) Yes 9) 5 10) Gym, Outdoor Activities 11) Health, Friends/peers, Physical appearance, Enjoyment 12) Time constraints, Location 13) Yes 14) No 15) I think I'm fine on my own/my schedule is already packed 16) No 17) I have not heard of Move More, Learn More 18) Social media, UBC Rec advertisements/ promotions, Posters, Booth, Student ambassadors
11	I consent, begin the study 1) Yes 2) Domestic 3) Applied Science 4) Female 5) Asian 6) Yes 7) Yes 8) Yes 9) 2 10) Exercise classes 11) Health, Friends/peers, Enjoyment 12) Time constraints, Location 13) No, but I make and effort 14) Yes 15) I would love to, as I am always looking out for opportunities to get moving. Extra knowledge about health is a plus too, as I don't really know much about living a healthy lifestyle. 16) No 17) I have not heard of Move More, Learn More 18) Social media, UBC Rec advertisements/ promotions, Posters

12	I consent, begin the study 1) Yes 2) Domestic 3) Applied Science 4) Female 5) Asian 6) Yes 7) Yes 8) Yes 9) 2 10) Gym 11) Health, Friends/peers, Physical appearance 12) Time constraints, Location 13) Yes 14) Maybe 15) Not sure if I'll have time to do it twice a week 16) No 17) I have not heard of Move More, Learn More 18) Social media, UBC Rec advertisements/ promotions, Posters, Student ambassadors
13	I consent, begin the study 1) Yes 2) Domestic 3) Kinesiology 4) Female 5) Asian 6) Yes 7) Yes 8) Yes 9) 2 10) Gym, Outdoor activities 11) Health, Physical appearance, Enjoyment 12) Time constraints, Money 13) No, but I make and effort 14) No 15) Satisfied with current health knowledge 16) No 17) I have not heard of Move More, Learn More 18) Social media, UBC Rec advertisements/ promotions

14	I consent, begin the study 1) Yes 2) International 3) Applied Science 4) Female 5) Asian 6) Yes 7) Yes 8) Yes 9) 1 10) Gym, Outdoor Activities 11) Health, Enjoyment 12) Time constraints 13) Yes 14) Yes 15) Encourage me to work out 16) No 17) I have not heard of Move More, Learn More 18) Social media
15	I consent, begin the study 1) Yes 2) International 3) Science 4) Female 5) Asian 6) Yes 7) Yes 8) Somewhat 9) 2 10) Outdoor activities, Exercise classes 11) Health, Physical appearance, Enjoyment 12) Time constraints, Knowledge surrounding exercise, Location 13) Yes 14) Maybe 15) Not interested in group activities 16) No 17) I have not heard of Move More, Learn More 18) Social media, UBC Rec advertisements/ promotions, Posters, Student ambassadors

16	I consent, begin the study 1) Yes 2) International 3) Other 4) Female 5) Asian 6) Yes 7) Yes 8) Somewhat 9) 1 10) Other 11) Physical appearance 12) It's not a priority to me 13) Yes 14) No 15) Lack of time 16) No 17) I have not heard of Move More, Learn More 18) UBC Rec advertisements/ promotions
17	I consent, begin the study 1) Yes 2) International 3) Forestry 4) Female 5) Asian 6) Yes 7) Yes 8) Yes 9) 2 10) Gym, Outdoor activities 11) Health, Physical appearance, Enjoyment 12) Time constraints, Knowledge surrounding exercise, Location 13) Yes 14) Yes 15) I want to know the right way to do physical exercise 16) No 17) I have not heard of Move More, Learn More 18) Social media, UBC Rec advertisements/ promotions, Posters

18	I consent, begin the study 1) Yes 2) International 3) Applied Science 4) Female 5) Asian 6) Yes 7) Yes 8) Yes 9) 2 10) Gym, Other 11) Health 12) Time constraints, Location 13) No, but I make and effort 14) Yes 15) I am willing to participate in it 16) No 17) I have not heard of Move More, Learn More 18) Social media, UBC Rec advertisements/ promotions, Posters, Booth, Student ambassadors

Figure 1.1: Faculty of Respondents - percentage of respondents from each faculty, divided into domestic and international students.

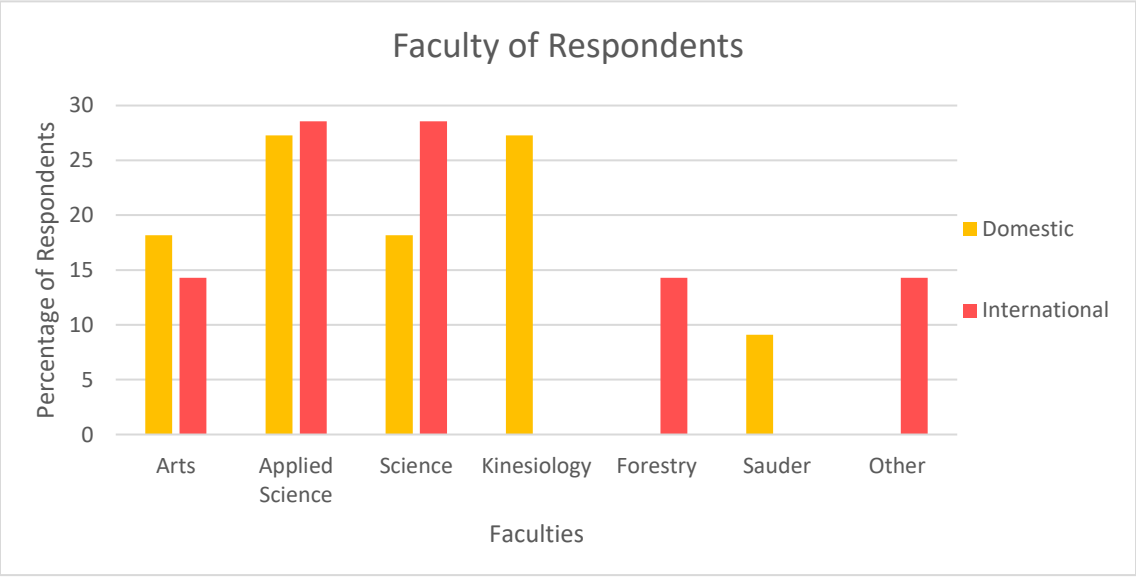


Table 2.1: Physical Activity Importance - percentage of responses indicated by respondents inquiring if physical activity was important to them.

	Yes	Somewhat	No
Domestic (n=11)	72.5%	27.5%	0%
International (n=7)	42%	42%	16%

Figure 1.2: Current Days Active - the mean number of days that participants currently report reaching 60+ moderate-vigorous minutes of physical activity.

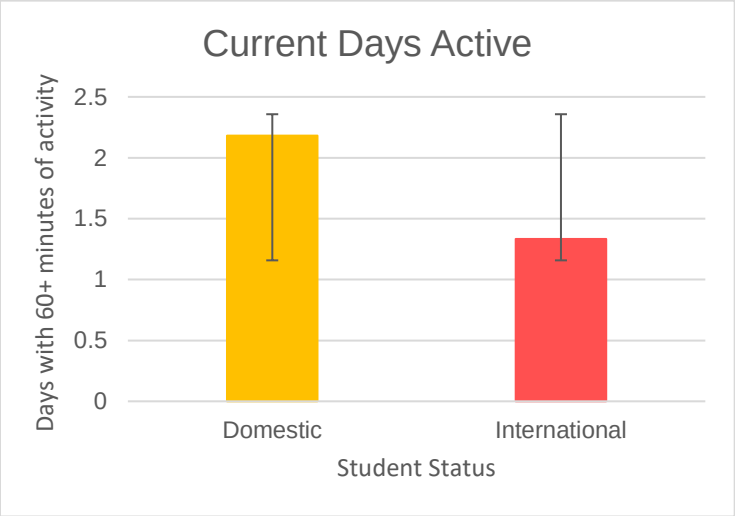


Table 2.2: Common Modes of Exercise – percentages of students reporting their typical type/locations of exercise

	Domestic	International
Gym	64%	57%
Outdoor activities	45%	57%
Exercise classes	27%	29%
Organized sport	27%	0%
Other	9%	29%

Table 2.3: Motivators to Engaging in Physical Activity

	Domestic	International
Health	100%	71%
Friends	64%	29%
Competition	9%	0%
Appearance	64%	57%
Enjoyment	64%	43%

Table 2.4: Barriers to Engaging in Physical Activity

	Domestic	International
Time	91%	71%
Money	45%	0%
Confidence	18%	0%
Knowledge	18%	71%
Not a Priority	18%	29%

Table 2.5: Eating Behaviours – responses of participants when asked if they believed they ate healthy foods the majority of the time

	Domestic	International
Yes	36%	42%
No, but I try	55%	42%
No	9%	16%

Figure 1.3: Interest in *Move More*, *Learn More*

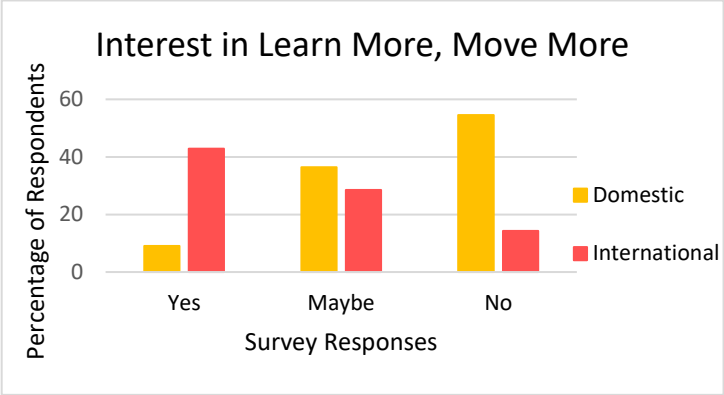


Figure 1.4: Perceived Best Promotional Strategy – respondent suggestions for how to best promote *Move More*, *Learn More* to a large group of people