



The Roles of Physical Activity and Health in Enhancing Student Engagement: Implications for Leadership in Post Secondary Education

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Research demonstrates that student engagement supports academic success (Kuh, 2001). Engagement is broader than the amount of time and effort that students devote to their studies. University curriculum, allocation of resources, educationally purposeful activities, and support services also facilitate the student experience and outcomes. Leaders in post secondary institutions need to take an inclusive approach to student engagement and realize that student success is a shared responsibility with students, faculty, and staff members all contributing to the campus experience. Coordinating programs and services across divisions is essential as "Student success is everybody's business" (Upcraft, Gardner, & Barefoot, 2005, p.87).

Taking a holistic approach to the campus experience, student engagement can be understood as a function of physical activity and health interacting with the institution's culture, policies and practices. This paper explores the literature on active healthy living and student engagement, with discussion on the implications for leadership within the university environment. The two questions driving this report are: 1) What roles do physical activity and health play in enhancing student engagement? and 2) what roles can leaders play to help promote a healthy campus for students in postsecondary education?

The Issue

Attending university can be a challenging experience for students who lack coping skills. Stress includes any perceived demands placed on the body and mind. Students arrive on campus with worries and anxieties about the future (Archer & Cooper, 1993). As well, some students suffer from serious emotional conditions that run the full spectrum of diagnostic disorders (Heitzmann & Nafziger, 2001) and "Physical health problems are also on the increase, often related to some mental health problems" (Crissman, 2001, p. 23). To help manage stress and promote overall well-being, students need to develop wellness strategies and make active healthy living a habit: "They must begin to think of maintaining health and wellness as an active rather than reactive process" (Upcraft, Gardner, & Barefoot, 2005, p. 9).

In the document 'Learning Reconsidered: A campus-wide focus on the student experience' (Keeling, 2004), a central theme is that campus educators need to develop partnerships and realize that they share broad responsibility for developing the whole student as a multidimensional individual. The recommendation is to replace our traditionally distinct categories of student learning and academic learning with a fused, integrated and comprehensive vision of transformative learning that is centered on and responsive to the whole student. Approaching health and wellness as a vital part of student development is an example of valuing the

whole student including their mind, body, emotions and spirit. Applying the learning reconsidered principles to campus recreation, including broad-based wellness programs, calls for staff and faculty to take a holistic perspective of student's well-being. Collaborative partnerships must be developed across interconnected divisions, with leaders valuing learning as a transformative process that occurs beyond the classroom.

Integration and Student Engagement

Tinto's (1975, 1987, 1993) theory of student departure is a widely used framework guiding research in persistence-related interactions among students and their college experiences. Students enter post secondary institutions bringing with them a variety of personal and family patterns, academic characteristics, and skill sets covering a wide spectrum. They have initial objectives, intentions and dispositions with respect to personal goals and a university experience. These commitments and intentions are continually reshaped through a longitudinal series of interactions between the individual and the structures and members of the social and academic systems of the institution. The assumption is that rewarding encounters with the informal and formal social and academic systems of the institution will lead to greater student integration and thus persistence to complete the degree (Pascarella & Terenzini, 2005).

Integration is the extent to which the individual shares the normative values and attitudes of peers and faculty in the institution and conforms to the informal and formal structural requirements for membership in the community and subgroups. As integration increases, students experience commitment to their personal goals and to the institution through which these goals may be achieved. Negative experiences, however, tend to hinder the integration process and distance the individual from the social and academic communities of the institution, thereby reducing commitments to goals and to institution thus leading to the student's desire to withdraw (Pascarella & Terenzini, 2005). Braxton, Sullivan, and Johnson (1997) suggest that the degree to which students become involved and integrated in the institution's social and academic systems could be a critical factor in students' persistence decisions: "students' institutional communities exert an important and positive effect in shaping their persistence decision, both planned and actual" (Pascarella & Terenzini, 2005, p.426).

Student engagement is the integrative interaction that takes place between the student and the institution. It links student behaviors and effective educational practice. Engagement differs from involvement in that it directly links to desired educational processes and outcomes. Student engagement is a means by which to pinpoint activities that can be influenced directly and indirectly to improve student learning, and is therefore related to institutional improvement (Wolf-Wendel, Ward, & Kinzie, 2009, p. 414).

As Hurtado (2007) suggests, today the idea of Tinto's integration is better phrased as a sense of belonging or social cohesion. As students form relationships with peers, faculty, and staff, they develop a sense of belonging, thereby integrating into the campus culture. Research demonstrates that relationships are a major source of happiness and a buffer against negative stress (Martin & Dowson, 2009). Relatedness is

explained as an energizing function that can positively affect mood. As Martin and Dowson explain, the need to belong hypothesis asserts that human beings have a pervasive drive to form and maintain lasting, positive, and significant interpersonal relationships. When successful, the resulting positive emotional responses can serve as a strong foundation to help support students' achievement-related behaviours.

From the perspective of George Kuh, student engagement includes two components: "the amount of time and effort students put into their studies and other activities that lead to the experiences and outcomes that constitute student success" and "how institutions of higher education allocate their human and other resources and organize learning opportunities and services to encourage students to participate in and benefit from such activities" (as cited in Wolf-Wendel et al., 2009, p. 413).

Student engagement can also be explained as "a broadly-defined term that describes the effort, interest and time that students invest in meaningful education experiences inside and outside the classroom" (Zhao, 2011, p.2). Willms (2003) suggests that student involvement has social and academic benefits for students and includes extracurricular activities. On the other hand, students with low sense of belonging may withhold their feelings and become disengaged. As suggested by Farmer-Dougan, and McKinney and Willms (2003), when students are unmotivated in university, they may become disengaged and withdraw.

Dunleavy and Milton (2009) indicate that the direct benefits of student engagement include friendships, sense of belonging, social network, school enjoyment, and academic success. Chapman (2003) suggests that students engaging in co-curricular activity experience more involvement in the task, increase effectiveness working through challenges, and demonstrate signs of greater happiness when they accomplish their work. Fletcher (2005) proposes student engagement can occur in activities that are planned. Life beyond the classroom contributes to the students learning environment with the greatest amount of impact stemming "from the students' total level of campus engagement, particularly when academic, interpersonal, and extracurricular involvements are mutually reinforcing and relevant to a particular educational outcome" (Pascarella & Terenzini, 2005, p. 267).

Campus Recreation Centers and Sense of Belonging

Dalgarn (2001) notes that campus recreation centers create a sense of community for students as they "[aid] in the development of the whole person by providing opportunities to recreate, relax, relieve stress and renew perspective" (p.68). Campus recreation centers function as community facilities that attract students, faculty and staff. For many users, the campus recreation facility can function as a place of community to "meet friends, hang out, see and be seen" (Dalgarn, 2001, p.68).

While the terms extracurricular activity and campus recreation are commonly used to describe the programs which students participate in outside of the classroom, today the term co-curricular activity is also being utilized. Central campus recreation facilities at most universities typically have dance studios or exercise rooms, strength and conditioning centers, gymnasiums, tracks, swimming pools, squash courts, and multi-use rooms

that provide space for a variety of physical activity opportunities. The facilities are recognized as social environments that bring together large numbers of students, staff and community members to meet and socialize with each other (Huesman et al., 2009).

Buccholz (1993) states that the majority of students who participate in fitness activities do so to interact with other students and develop a sense of belonging. Drop-in and registered fitness instruction classes offer opportunities for student interaction and these connections help students strengthen their social skills and integrate into the university (Belch, Gebel, & Maas, 2001). Frauman (2005) states that the college retention rates can be linked with participation in co-curricular activities on campus.

According to Strayhorn (2008), peer interactions and active learning are moderately and positively correlated with students' self-reported personal and social learning gains. Based on Strayhorn's findings, peer interactions are shown to have the strongest relationship with personal and social growth. The implication is that students benefit from campus programs and services that require them to engage with their peers in meaningful dialogue and activities. Strayhorn suggests that collaborative activities such as intramural sports have the potential to yield growth and personal development. The results from the study demonstrate that co-curricular involvement influences learning outcomes. Co-curricular activities that encourage students to interact with their peers can influence students' personal and social learning. Learning is described as occurring in "every nook and cranny" (Strayhorn, 2008, p.12).

Students who use campus recreation facilities develop a community within the facility (Huesman et al., 2009). Campus recreation facilities are important not just for offering a continuum of physical activity opportunities, but also for providing a safe place to engage with other students and take a healthy break from academic studies (Huesman et al., 2009). Students experience a sense of community with the facilities as they create opportunities for social interaction and these feelings are often affiliated with the institution (Hall, 2006). Hall states that community social interaction and affiliation with an institution influence student persistence. Social belonging to the campus athletic centre can lead to social belonging to the institution as a whole (Artinger et al., 2006). Miller (2011) revealed that the students who use campus recreation centers experience place bonding, social belonging to the athletic facility and to the institution as a whole, integration into the university, and thus retention.

Henchy (2011) describes the influence of campus recreation beyond the gym by discussing the results of a campus survey based on the NIRSA/Student Voice Campus Recreation Impact Study Survey. The majority of facility users (96%) either simply or strongly agreed that campus recreation facilities and programs improved the quality of life for student life at the university; 57% of students felt that their overall health had moderately or strongly improved; 51% felt that their feelings of well-being had strongly or moderately improved; and 81% felt that they felt more at home in the university as a result of participating in campus recreation programs (Henchy, 2011).

Belch et al. (2001) found that students who participate in recreational sports develop informal support groups and are more likely to seek advice

from other students and faculty. Huesman et al. (2009) agree with Dalgarn and Belch et al. that small communities including clubs and teams are created in campus recreation facilities, and encourage social integration. According to Huesman et al. (2009), social integration positively impacts students' lives and contributes to campus engagement.

These results show that participation in campus recreation provides social benefits as it helps students make new friends, develop a sense of belonging, and enhance social skills. Being involved in campus recreation programs and facilities helps students to integrate within the social aspects of the university. Social integration contributes to persistence because students who integrate into the campus culture are more likely to remain at the university (Tinto, 1975).

According to the report, 'In Their Own Words: Understanding the Undergraduate Student Experience at the University of Toronto' (Council on the Student Experience, 2010), the primary motivator for students who participate in co-curricular activities is the opportunity to meet friends and find community on campus. As one student reports, "I often feel distant from the community. More could be done to encourage community activities, not just within individual colleges, but throughout the entire student body" (Office of the Vice Provost, Students of the University of Toronto, 2009, p.14). These findings confirm the importance of offering campus recreation opportunities to help students develop new friendships and find a sense of community.

Physical Activity, Health, and Student Success

An important component of success for university students is how engaged they are in health and wellness. A study by Bray and Born (2004) focused on the implications of vigorous physical activity during the transition to university. They found that the students who were active during transition reported higher levels of vigor and lower levels of tension and fatigue than insufficiently active students. On the other hand, the individuals who had become insufficiently active during transition reported lower levels of vigor and higher levels of fatigue compared with those who had continued to be active. Considering the positive physical and mental health benefits of regular vigorous physical activity coupled with the achievement-oriented and competitive environment of university, the research suggests that students can enhance their overall health and well-being by staying active (Bray & Born, 2004).

Adams, Moore, and Dye (2007) examined the relationship between physical activity and mental health in a national sample of college females. Vigorous/moderate exercise was associated with positively associated perceived health and modestly negatively associated with depression. Strength training exercise was positively associated with perceived health and modestly negatively associated with depression, anxiety. The findings show the correlation between exercise and mental health with the implication being that lack of exercise contributes to depression. O'Connor, Herring, and Carvalho (2010) also found that resistance training enhances mental health. They showed that strength training improves cognition, self-esteem, and quality of sleep while reducing anxiety, depression, and chronic fatigue.

Regular vigorous physical activity is positively associated with beneficial health factors including lower incidence of illness (Bray & Born, 2004). It is also related to psychological wellness, with established links to lower levels of stress, anxiety, depression, and negative mood and to improved cognitive functioning as well as higher levels of positive mood. The implication is that if physical activity is altered during transition, it may have important acute physical and psychological consequences for first-year students. Furthermore, a decline in physical activity during the first few months of university may lead to a pattern of inactivity that persists not only throughout one's university years, but also beyond graduation (Bray & Born, 2004).

Recent research suggests that university students may be at high risk for compromised psychological wellness (Adlaf et al., 2001). This study found that psychological distress was significantly higher among 7,800 Canadian undergraduate students than among population norms. First-year students reported the highest levels of psychological distress of the other undergraduate years.

Studies that examined campus recreation facilities, student development, and academic success include the following key findings: First year students who use recreation centers in their first semester have higher first term grade point averages and persistence rate compared to non-users (Belch et al. 2001), and participation in recreational sport activities has shown positive contributions to academic achievement and persistence rates (Hackett, 2007; NIRSA, 2002).

Kasim (2001) found that students who balance their academic and non-academic activities have a higher grade point average. He demonstrated that the more intense the recreation activity, the more positive the student's motivation to learn in the classroom. Huesman et al. (2009) were the first researchers to use campus recreation facility counts from swipes of entrance into the campus recreation facility and individual student academic records, including grade point averages from the Registrar's Office.

Studies show a correlation between student development and the use of campus recreation centers (Dalgarn, 2001) and the higher retention rates of students who utilize recreation centers on campus (Belch, Gebel, & Maas, 2001). Astin (1984) states that the greater the student's involvement in college, the greater the degree of personal development and learning that the student will achieve (Astin, 1984). Garland (1985) states that students are more likely to be satisfied with their college experience and graduate if they participate in co-curricular activities.

Research suggests that student co-curricular involvement may have positive implications for cognitive development. Inman and Pascarella (1998) revealed that a measure of involvement in clubs and organizations on campus positively influenced end-of-first-year scores on a standardized measure of critical thinking skills. Baxter Magolda (1992a, 1992b) found similar findings in her qualitative investigation of growth in students' reasoning skills over four years in college. Pacarella and Ternzini (2005) found that the majority of evidence indicates that participation in intercollegiate sports promotes educational attainment. The findings suggest that male athletes are 4 percent more likely to graduate than male

non-athletes (p. 616). While the research shows that women also experience educational attainment benefits as a result of participating in intercollegiate sport, the advantage for women is less clear.

Assessment of the Student Experience

The National Survey of Student Engagement (NSSE)

Current assessments of student engagement in post secondary institutions do not adequately reflect the vital roles of physical activity and health in enhancing the student experience. According to the National Survey of Student Engagement website (www.nsse.iub.edu), NSSE annually collects information at hundreds of four-year universities and colleges about student participation in activities and programs that provide student learning and personal development. NSSE is based upon research which reveals that certain types of student behaviors and institutional practices are associated with higher levels of student development and that the more time and effort that students put into educationally useful activities, the greater degree the of learning and development (Clark et al., 2009).

A shortcoming of NSSE is that it does not effectively measure all areas of student engagement, including participation in physical activity and wellness programs. Therefore, it is important to use this assessment tool only in combination with other instruments that provide a more comprehensive understanding of student participation in active healthy living experiences that support learning and campus engagement.

Measuring Up on the Undergraduate Experience

According to the document Measuring Up on the Undergraduate Experience (2009), the majority of students at the University of Toronto are not engaging in physical activity on a regular basis. The results showed that 21.4% of senior students at U of T answered very often when asked how often they exercise or participate in physical fitness activities, and 18.8% of first year students reported very often to this same question. The senior student statistics for Canadian Peers was 27.1%, and for first year students it was 23.9%. Of senior students at U of T, 22.4% reported participating in co-curricular activity more than 5 hours/week, while only 16.1% of the first year students reported participation. The percentage was 24.6% for Canadian Peer seniors and 19.8% for first year students.

The National College Health Assessment (NCHA)

The ACHA-National College Health Assessment II (ACHA II) is a national research survey organized by the American College Health Association (ACHA) to assist college health service providers, health educators, counselors, and administrators in collecting data about their students' habits, behaviors and perceptions on the most prevalent health topics. It provides the largest known comprehensive data set on the health of college students. ACHA initiated the original ACHA-NCHA in 2000 and it was administered nation wide during the spring of 2008. The revised survey, ACHA-NCHA-II, includes revisions such as new items capturing sleep behaviours and mental health issues.

According to the ACHA-NCHA-II Ontario Reference Group Executive Summary (American College Health Association, 2009) received via personal correspondence from the Executive Director of Health and

Wellness at the University of Toronto on November 29, 2011, university students reported the following behaviours within the past 7 days: 58.5% engaged in moderate-intensity cardio or aerobic exercise for at least 30 minutes for 1-4 days and 14.4% did so for 5-7 days; 32.1% engaged in vigorous-intensity cardio or aerobic exercise for at least 20 minutes for 1-2 days and 22.5% did so for 3-7 days. According to the report, only 39.3% are meeting the guidelines on physical activity recommended by the American College of Sports Medicine and the American Heart Association. The implication is that students could benefit from increased accessibility of broad-based physical activity as well as more health education and promotion.

In terms of mental health, responses are also provided in the ACHA-NCHA-II Ontario Reference Group Executive Summary 2009 regarding students experiences of feeling hopeless, exhausted, overwhelmed, and lonely. When students were asked if they experience these feelings 'at any time within the last 12 months', the reports were as follows: 54% felt things were hopeless, 85.2% felt exhausted (not from physical activity), 89.0% felt overwhelmed by all they had to do, 61.9% felt very lonely, 67.7% felt very sad, 52.9% felt overwhelming anxiety, 36.4% felt so depressed that it was difficult to function, and 44.3% felt overwhelming anger.

When students in this health assessment were asked how they would rate their overall level of stress within the past 12 months, 43% reported more than average stress and 11.4% reported tremendous stress. With respect to sleep, 42.9% reported feeling tired, dragged out, or sleepy during the day for 3-5 days within the past 7 days. Of the students surveyed, 4.6% participated in Varsity sports, 11.7% participated in club sports, and 18.3% participated in intramurals.

According to the American College Health Association National College Health Assessment (ACHA-NCHA-I) University of Toronto Institutional Data Report Spring 2009, the majority of students are not receiving information from their college or university on nutrition and physical activity. Only 28% answered yes to receiving information on nutrition (yet 60.2% expressed an interest in receiving this information), and only 39% replied yes to receiving information on physical activity (yet 58.5% expressed an interest in receiving this information). Only 37.5% received information on depression/anxiety (yet 53.2% expressed an interest in receiving this information), 14.6% received information on sleep difficulty (yet 55.7% expressed an interest in receiving this information), and 42.2% received information on stress reduction (yet 66.2% expressed an interest in receiving this information).

The ACHA-NCHA-II University of Toronto results for 2009 indicate that a number of students are not engaging in enough physical activity to meet the Canadian Physical Activity Guidelines. Of the students, 49.3% reported that they did not engage in vigorous intensity cardio or aerobic exercise for at least 30 minutes within the last 7 days, and 28.5% reported that they did not engage in moderate intensity cardio or aerobic exercise for at least 30 minutes within the last 7 days. With respect to strength conditioning, 61.9% reported that they did not engage in 8-10 strength-training exercises (for 8-12 repetitions each) within the past 7 days.

The U of T responses to the ACHA-NCHA-II 2009 health assessment

also indicate that a number of students are being impacted by stress in addition to experiences of feeling hopeless, overwhelmed, exhausted, lonely and sad. Forty-five percent of the students reported more than average stress within the past 12 months, , 20% stated that their level of stress affects their academic performance and as a consequence they received a lower grade on an exam; and 8.8% stated that they received a lower grade in a course as a result of stress. For students who reported specific health experiences within the past two weeks, a few examples include: 20.1% felt things are hopeless, 46.0% felt overwhelmed by all they have to do, 47.4% felt exhausted (not from physical activity), 24.1% felt very lonely, 26% felt very sad, and 12.8% felt so depressed they found it difficult to function.

One shortcoming of the National College Health Assessment is that it does not ask students to report on factors that positively influence their academic performance, yet it does ask students to report on factors that negatively influence their academic performance. Such a question would need to be added to provide responses for the students who perceive that their participation in co-curricular activities positively enhances their academic performance. Questions are also needed to gather data on student involvement in recreational activities that are not currently included in the category of athletics or sports. The health assessment already asks questions to find out how many students are participating in Varsity teams, clubs sports, and intramural programs. However, there are no questions asking students whether they participate in drop-in group fitness programs or registered instruction classes such as aquatics, dance, martial arts, sport, and yoga. Furthermore, there are no questions that specifically ask students whether their participation in recreational physical activity helps them to manage stress and enhance academic success.

It is important to note that health surveys completed in post secondary institutions in the United States are not necessarily applicable and generalizable to the student population in Canadian post secondary institutions. For example, social norms of alcohol, smoking, and marijuana use within a Canadian university have been compared to the American context. The current study findings suggest that, in addition to cigarette use, Canadian university students use alcohol and marijuana less frequently than their U.S. peers. Students of a White ethnicity have been found to be at a greater risk of using cigarettes, alcohol, and marijuana than their non-White peers. For the alcohol model, being in a relationship and living away from home were also associated with greater alcohol use (Arbour-Nicitopoulos et al. 2011). Health professionals at Canadian universities can use this information to develop targeted health promotion strategies. For example, health promotion staff can offer wellness workshops specifically designed for students who are in a relationship and living away from home to educate them on the impact of alcohol consumption.

NIRSA Recreational Benchmarking Survey

The NIRSA Recreational Benchmarking Survey asks students more extensive questions regarding their participation in fitness programs and other types of physical activity on campus; however, this survey has not yet been conducted at universities in Canada. One of the questions specifically asks students if their participation in recreational activities has increased or

improved their feeling of well-being, ability to get a good night's sleep, stress management, ability to develop friendships, overall health, and academic performance. It also includes an open question to find out in what other ways their participation has enhanced their experience at the college/university.

Canadian administrators in fitness and instruction roles at universities are currently engaging in discussions to consider whether or not to implement this survey and if so, what tweaks might be needed to take into account the Canadian context.

Implications for Leadership in Post Secondary Education

To this point, this paper reviewed literature that shows the roles of physical activity and health in enhancing student engagement. More wellness education is needed to help inform students of the benefits of active healthy living. Furthermore, assessment tools must go beyond NSSE and include comprehensive health assessments that provide a holistic picture of student's overall well-being. Future studies must consider how to improve student access to physical activity and wellness programs. Qualitative and/or mixed method approaches would be beneficial to enhance the current breadth perspective and elicit student stories that give meaning to student engagement. Also, longitudinal studies can be conducted that include a cohort of students to track the long-term impact of physical activity and health on the student experience.

When reviewing student engagement, including participation in active healthy living, studies should take into account physical activity guidelines. When designing or revising questions on student engagement and health assessments with consideration of the Canadian context, it is important to consider the number of minutes that students engage in moderate to vigorous cardiovascular exercise and cross reference the revised Canadian Physical Activity Guidelines. These updated guidelines state that to experience significant positive changes to health, the recommendation is to engage in 150 minutes of moderate to vigorous intensity aerobic physical activity per week with activity being accumulated in a minimum of 10-minute bouts. According to ParticipACTION, the national voice of physical activity and sport participation in Canada, these guidelines are based on the most recent evidence explaining the amount and types of physical activity needed to experience significant positive changes to health. These guidelines are also supported by the Canadian Society of Exercise Physiology organization, the principal body for physical activity, health, and fitness research in Canada.

Canadian context is also important when considering access issues. Specific studies are needed to research particular target groups such as aboriginals, francophones, new Canadians, persons with disabilities, low-income families, and first generation students. In addition, assessment of student participation in broad-based active healthy living needs to take into account the number of students who engage in physical activity and wellness programs regardless of age, the proportion that actually achieve the post secondary credential, and whether or not underrepresented groups are involved and attaining academic success.

Accessible fitness and instruction programs and health promotion services need to provide equal opportunity for all who are eligible to

participate regardless of age, gender, culture, ethnicity, social status, disability, and transcending economic and social strata. To increase accessibility, leaders can advocate for government intervention including policy changes at the provincial and federal levels, removal of direct financial barriers, and removal of indirect financial barriers (e.g., the need for role models and increasing awareness of accessible physical activity health opportunities for lower socio-economic groups), and initiatives to help change attitudes and behaviours to support a healthy campus culture.

In addition to more comprehensive research and assessment tools that take into account the Canadian context, access, retention and success, coordination of responsibilities is also needed. Sharing responsibility for student success is essential. For example, the fitness staff at campus recreation centers and health professionals working in different divisions need to coordinate and collaborate on broad-based wellness initiatives. Fitness and health cannot be treated as separate subjects, even though these programs are typically managed by different departments operating under separate organizational structures within multiple facilities in buildings that are literally physically divided. Physical activity and wellness are interconnected and thus staff members managing these areas need to stay connected and work together as a team.

The NCHA-ACHA survey results must be taken into account as the fitness staff at recreation centers coordinate and collaborate on initiatives with health professionals across campus. According to the NCHA-ACHA, nearly half of the sample reported not receiving any health information, whereas only 0.5% received information on all health topics. The Internet was the most common source of health-related information, but, conversely, was perceived as the least believable source. Health center medical staff and university health educators were perceived to be the most believable sources (Kwan et al., 2010).

The implications of these NCHA findings are that the Internet should be considered, in combination with the campus staff, as channels for health promotion on university and college campuses. Health educators can develop Web-based information and services that utilize established social network tools such as Facebook. However, the Internet should not replace brochures and other traditional means of disseminating health information since health center medical staff and health promotion educators on campus are still perceived as the most believable source (Kwan et al. 2010).

According to the ACHA-NCHA website (www.acha-ncha.org), the NCHA survey results help leaders determine the most significant health trends and priorities of the institution's student body. Within the 'using data' section of this website, the following examples are listed: identify the most common health and behaviour risks affecting students' academic performance, design evidence-based health promotion programs with targeted educational initiatives, create social norms marketing campaigns, allocate monetary and staffing resources based upon defined needs, provide needs assessment data for campus and community task forces on specific topics (e.g., stress, anxiety, depression, loneliness); have readily available graphs and data for policy discussions and presentations with faculty, staff, administration, and board members; impact the campus

culture by opening a dialogue about health with students and staff; develop proposals to secure grant funding to expand or develop programs; and evaluate programming efforts by conducting repeat administrators of the survey.

The ACHA-NCHA website also includes the following examples of additional ways that the data can be utilized by leaders working in different faculties and departments across campus. Faculty can use the data to present in social sciences, health, communications, and research classes. Students can work with the data to gain hands-on experience working with and analyzing data. Campus and local media can cite in articles and editorials. Administration can showcase the data in presentations with partners on campus as well as community partnerships. Marketing professionals can draw on the data for promotional materials.

An example of leaders on campus who are applying the NCHA assessment findings to wellness intervention strategies is the health promotion staff at the University of Toronto, St. George Campus. These staff members who work in the Health and Wellness division of Student Life are disseminating two brochures that make use of the National College Health Assessment data. The flyer 'Better Health for a Better GPA' includes the following 5 steps to better health: stress less, sleep better, eat well, avoid colds and flu, and know your limit. Each suggestion is backed up by statistics from the NCHA data results. The flyer 'Build on Your Strengths' states that "there is no health without mental health" and suggests the following steps to support mental health: build resilience, build healthy relationships, cope with stress, understand depression, and understand anxiety. This flyer also includes statistics from the NCHA survey results to provide support for each suggestion.

Based on the results of NSSE and NCHA, post secondary institutions have a responsibility to put more effort and resources into health promotion and go beyond brochures. Leaders must go out to the various faculties and residences to specifically educate students on the importance of physical activity and health. More students need to receive health information and understand the implications for their overall wellness and academic success.

Students who do receive the brochures on health may realize the value of building resilience and take time to read through the following suggested steps: be patient, break problems down, avoid focusing on the why or who's to blame, be flexible in your thinking, share concerns with people you trust, avoid catastrophic thinking, and take care of your overall health. They may also take time to read the suggestions for coping with stress: focus on things you're able to change, focus on the positives, challenge negative thinking, take care of relationships, be okay with saying 'no' and delegating, learn to prioritize, enjoy nutritious food and exercise regularly, take time to relax and have fun, and set realistic goals while taking time to acknowledge successes along the way.

However, understanding the theory and putting the information into practice is not the same thing. More 'inreach' leadership initiatives are needed to go out to the students and present interactive, experiential workshops that help students put the theoretical principles into practice. The same is true for experiencing the benefits of physical activity. It is not

enough for health promotion leaders to simply talk about the benefits of exercise. Leaders need to go meet with the students in the various faculties and residences and offer introductory fitness and dance activities to help students experience the benefits of exercise and movement firsthand. Waiting for students to come to the campus recreational centers is not a sufficient approach. Leaders must meet students where they are and inspire them to become physically active and engaged in a healthy lifestyle that supports their capacity to learn. Follow-up programs also need to take place to help keep the students engaged and committed to wellness.

Fitness and health professionals can work together with student leaders to support broad-based active healthy living initiatives across campus. Such collaborative initiatives need to employ innovative, coordinated strategies that increase awareness among both students and staff of the relationship between physical activity, healthy eating, mental health, social integration and student success. As leaders collaborate on broad-based health initiatives, it is important to consider multiple frames (Boleman & Deal, 2008). Fitness and health professionals on campus will have a diversity of views on how to promote wellness. Student leaders playing the role of physical activity ambassadors and peer health educators will also offer a variety of perspectives.

When considering new physical activity and health programs in multi-cultural post secondary institutions, it is important to consider the diversity of backgrounds of the students, faculty and staff and to approach wellness strategies using a multi-frame perspective. To support inclusion both inside and outside the classroom, different viewpoints must be taken into account. Boleman and Deal (2008) refer to frames as mental models, cognitive lenses, maps, orientations, filters, perspectives, or sets of ideas and assumptions. By considering different frames, leaders increase objectivity and help prevent poor judgment calls: "Because people using single frames often have only single solutions for all situations, they make numerous errors in judgment" (Birnbaum, 1992, p.64).

"Leaders who call upon multiple frames have available to them alternative ways of considering problems and a repertoire of behaviours from which to choose" (Birnbaum, 1992, p. 65). This process may require breaking frames as old narrow views are released in order to integrate new perspectives. The benefit of reframing or looking at issues in new ways for positive outcomes is that it offers leaders a means to make sense of ambiguity and navigate through the waves of change while still taking into consideration context and multiple perspectives (Boleman & Deal, 2008, p.22).

With an understanding that different frames will be more useful in certain situations, regardless of the collaborative initiatives, it is important to implement enough structures to support the coordination process as "even good people can't function as well without some structure" (Boleman & Deal, p. 423). Tasks and responsibilities can be defined to provide a clear definition of roles and relationships. When planning collaborative wellness events, it is important to ask a variety of questions to clarify the process. Such questions include: Who is responsible? Who has to approve? Who needs to be consulted? Who needs to be informed and who doesn't need to be in the loop?

While it is important to also remain flexible and be able to go with the flow as creative ideas develop and as needs change, systems still need to be in place to support the innovative and collaborative processes. If any details fall through the cracks, communication problems are not necessarily due to the personalities and interpersonal relationships of the players involved; the real challenges could simply be systemic. Too often the 'blame frame' is used, as "...we blame individuals when the real problems are systemic" (Boleman & Deal, 2008, p.422).

To help avoid the 'blame frame' and support inclusive practices, leaders actively working to promote health initiatives must continually embrace a multi-dimensional approach and take into account a variety of frames. As Boleman and Deal (2008) explain, it is important to consider the institution's structure and organization (including setting priorities, making orderly decisions, and communicating through established lines of authority) as well as achievement of goals through collective action building, consensus, and problem solving that includes a team approach commitment to the institution. In addition, it can be helpful to monitor the internal and external environment and use influence to mobilize needed resources, establish relationships with important constituents, and develop coalitions of approach. Furthermore, it can be useful to interpret the institution's history and its reinforce values.

"To see the same organization as machine, family, jungle, and theatre requires the capacity to think in different ways at the same time about the same thing" (Boleman & Deal, 2008, p.437). This comment suggests that leaders educating the campus community on the benefits of physical activity and health need to consider multiple frames of reference and approach wellness promotion as a shared responsibility. Coordinating efforts must include not only staff at the campus recreation centers and health and wellness divisions, but also the faculty members themselves. Building partnerships is key for bridging the divide between the groups on campus most committed to students. Creating seamless learning environments calls for cross-functional collaborative partnerships between the diverse stakeholders who share a common interest in student's quality of life, academic success, retention, and graduation.

Student life professionals, campus recreation fitness staff, and faculty members need to realize they are on the same team working to enhance the student experience and support the learning environment. All of these leaders need to educate the campus on the important role of physical activity and health in facilitating students' capacity to learn. As the Council for the Advancement of Standards in Higher Education states, "Among students in higher education, health supports the capacity to learn; when health is compromised learning is constrained" (Strayhorn, 2006, p.69). The implication is that if health is enhanced, learning capacity expands.

Understanding that the nature of the undergraduate experience is highly fragmented, it is important to bridge boundaries and create learning environments that are seamless. Organizational arrangements and processes need to be linked and aligned appropriately to provide an integrated and coherent experience for the students. As Pascarella & Terenzini (2005) note, "By linking, aligning, and integrating resources, partnerships can create synergies for student learning and success"

(p.213).

Student leaders, fitness staff, wellness professionals, faculty and staff members are all important agents of socialization on campus and as such they have a shared responsibility to facilitate healthy interaction in educationally purposeful ways. The cumulative impact of interpersonal interactions has the potential to be much stronger when learning experiences are part of a mutually supportive, coordinated and reinforcing set of program initiatives with health promotion interventions blurring the boundaries between the various academic and student life divisions. By developing a framework of action as they share responsibility for embedding seamless physical activity and health learning experiences that support student's overall well-being, leaders in post secondary institutions can strive beyond health education and actively integrate wellness into the institution's culture, policies, and practices.

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