Multi-level Examination of Capabilities to Enable Physical Activity at Secondary School

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Abstract

Secondary schools are identified as key sites for the development of population health, given that health related habits developed in adolescence predict health practice in adulthood. Along with healthy eating, there is a consensus across research that being active is central to maintaining a healthy lifestyle, with associated benefits of higher quality life and sense of wellbeing. Currently, the sub-optimal physical activity levels of adolescents are widely acknowledged across research. Seeking to contribute to knowledge on this issue, this project sought to move beyond individualised, motivation orientated research on physical activity in schools by drawing on ecologic theory and capabilities approach that focuses on personal and school-based factors that influence staff to enable students to engage with activity. An online survey was designed to capture Bay of Plenty secondary school staff's experiences and understanding of their capability to respond to the national physical activity guidelines of students. Twenty-seven responses were analysed using qualitative and quantitative methods to identify the personal and school-based capability-based factors involved with staff enabling students to be physically active at school. Key findings: Staff perceived themselves as capable to enable students to be active, and a range of school-based factors interact with personal capabilities. Staff can feel inhibited by limited time, workload, the school's structure and lack of support. The student-staff relationship was perceived as essential to student participation in activity. Staff expressed value for enabling students to be active. Staff looked to the school environment for easily accessible and barrier free elements that support physical activity that is enjoyable for students. These findings help identify where opportunities to develop physically active cultures within schools exist; to provide insight into policy development and engagement with policy; and in doing so, contribute towards improving the outcomes for our young people.

Acknowledgements

The purpose of this research was to develop a richer understanding of physical activity in schools and to consider the potential of those in positions of influence to support students to engage in activity. Professor Sarah Riley of Massey University is acknowledged for the extensive support, encouragement, expertise and patience invested into the content of the thesis and throughout the process involved. As the key supervisor, the challenges associated with working with distance students virtually and during a global pandemic should not be understated. Thank you to the secondary schools in the Bay of Plenty and especially those staff who shared valuable insight for this project. Your contribution was treated with the utmost respect in order to present a fair and accurate analysis of enabling physical activity in school. Your invaluable efforts and investment in your students is acknowledged. To my whānau and my circle of support, thank you for the vast amount of care continually provided and for encouraging me to be courageous so that I can endeavour to contribute meaningfully to the health and wellbeing of young people.

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Key players in the health, sport and education sectors all assert the importance of being active (alongside eating well) to maintain a healthy lifestyle in order to increase one's quality of life and sense of wellbeing (Ministry of Education, 2020; Ministry of Health, 2017; Sport New Zealand, 2017). In this project I explored the multi-level influences that are impacting on staff and their capability to enable physical activity within secondary schools across the Bay of Plenty region in New Zealand. The Bay of Plenty region in Aotearoa/New Zealand represents an area with a range of both urban and rural secondary schools across the decile categories, thereby allowing these factors to be included in the study. Current research often looks at individual-level factors and the motivations of adolescents being active or engaging in health-related behaviours. Instead, I used ecological theory and the capabilities approach as a theoretical framework to investigate the organisational, social, environmental, and personal capability-based factors at play for school-based leaders and staff. Thus, an aim of this research was to critically analyse personal and school-based factors that enable or limit staff to support young people being active within a school by taking a different approach. In the literature review below, I first describe how physical activity for young people is central to a variety of government policy, then examine the research surrounding the benefits of physical activity on which this policy is based. I also present a summary of previous research that explored how physical activity was understood and the interventions designed to increase physical activity. Collectively, this worked to also shape my problematisation of approaches taken and instead suggest the capabilities approach supported by ecological theory.

The Context of the Study: Physical Activity in Aotearoa/New Zealand

This chapter frames the context in which the problem of adolescent inactivity in Aotearoa New Zealand sits. After reviewing relevant literature, further investigation into what we know about physical activity in young people and in schools will be presented. In doing so, attention shifts to those in positions of influence in order to consider a different way to understand what is often presented as an individual-level problem, and to challenge the idea that young people, as individuals, are solely responsible for their inactivity. Next, this paper delves into theory and approaches considered useful to address adolescent inactivity, within the school context by suggesting an ecological theory and capabilities approach as a new framework.

There are many variations of how physical activity may be defined with consideration given to type, duration, intensity and purpose. The Ministry of Health (2017) suggests young people (aged 5 to 17 years) can achieve greater health benefits through high levels of physical activity, low levels of sedentary behaviour, and sufficient sleep each day. The more popular ways to be active may include walking, cycling, sports, active recreation and play, and all can be done at any level of skill and for enjoyment by everybody (World Health Organisation, 2021). Other recommendations addressed various factors across the ages and stages. New Zealand's Ministry of Health specified that on average, 60 minutes per day of moderate-to-vigorous intensity, mostly aerobic, physical activity, across the week should occur for children and adolescents aged 5-17 years. Suggestions were made around activity that is 'vigorous and strength-based' for at least three days a week and limiting sedentary activity. In addition, adolescent guidelines recommended moderate-to-vigorous physical activity every day as well as a variety of light activities for several hours a day. For this project, physical activity was explained as any bodily movement produced by skeletal muscles that requires energy expenditure, and included all movement including during leisure time, for transport to get to and from places, or as part of a person's work. With both moderate- and vigorous-intensity levels considered.

The vast and positive benefits of being physically active are well known and very well documented (Dudfield & Dingwall-Smith, 2015; Mental Health Foundation New Zealand, 2019; Ministry of Health, 2017; Sport NZ, 2017). Various government agencies have responded to this evidence base to develop policies around supporting people, and in particular, supporting young people to be physically active. For example, 'be active' is one of the five key action-based strands by New Zealand's Mental Health Foundation that encourages physical activity to be built into

daily life to enhance the wellbeing of individuals, families, communities and organisations. Based on a background paper 'Food and Nutrition Guidelines for Healthy Children and Young People', the Ministry of Health (MOH, 2012) asserted the importance of the wellbeing of our adolescent and the establishment of healthy patterns and behaviours, beyond the experience of teenage life.

Key highlights from Sport New Zealand's work around the value of sport identified a number of positive effects that are a result of physical activity. For example, physical activity contributes to: improvements in physical and mental health; improved wellbeing of students, of school staff and for the wider community; and physical activity improves engagement and learning outcomes; works as a bridge to connect with young people, can be a useful tool for behaviour and mood; it also works to develop positive individual-level factors such as self-confidence, self-esteem and physical self-perceptions and which may work to prevent wider health problems in the future (Sport NZ, 2017). The interrelatedness of physical activity, wellbeing, education and health of young people is evident and is a central pillar in a variety of National policies in relation to health, sport and education.

The shared value of physical activity is situated within the idea of young people's wellbeing and is made explicit through the relationship between the New Zealand Child and Youth Wellbeing Strategy and the Ministry of Education with wellbeing initiatives being a prominent feature more recently. Such initiatives were founded on the importance of physical activity and recognising the decline in physical activity during adolescence. To provide a wider view on the importance of improving the health and wellbeing of our young people, I looked to New Zealand's Treasury. The Government's lead economic and financial adviser provides strategic policy advice on its economy and produces an array of information and economic data. The Treasury works towards a New Zealand with sustainable and inclusive prosperity. The Treasury's Living Standards Framework (LSF) provided indicators of wellbeing and insight into wellbeing from the Treasury's perspective. Findings from the general social survey showed people with low wellbeing for health (compared with people who have medium or high) were more likely to have low subjective wellbeing. In sum, findings of the social survey lend itself to support research that explores the capability of people to live lives that they have reason to value. The work of the Treasury, alongside the aforementioned sport and health surveys, highlighted the need to consider the role of physical activity in relation to one's wellbeing, thus is a key idea underpinning the

current research. Although key ministries in New Zealand recognise the importance of physical activity in relation to improved wellbeing, there is still room for improvement.

Currently, the physical activity levels of adolescents (13–17-year-old) within mainstream secondary school sites in New Zealand is inadequate and recent research pointed to the need to address these low levels of participation. The findings from the Youth'12 survey by the University of Auckland found only 10% of secondary school students met the current recommendations of 60 minutes of physical activity daily. Furthermore, sedentary activities (watching tv 28%, internet use 35%, gaming 32%) were commonly engaged with for three or more hours of each day (for each of the activities listed).

To further highlight the need to address the physical activity levels of young people, findings captured through Sport NZ's Active NZ survey also showed a peak in participation between 12- and 14-year-olds, both in the time spent as well as in the number of physical activities. Weekly participation steeply dropped between 15 and 17 years of age. The same survey found high deprivation areas characterised by lower participation rates and a gender gap between the ages of 15 and 24 in the time spent being active, with males significantly more active during these years. A number of governmental sectors (health, sport, treasury and education) acknowledge the current physical activity levels of young people as lower than optimal, with health and physical education positioned as having potential to make a significant contribution to the wellbeing of students beyond school (MoE, 2020; Department of Prime Minister and Cabinet, 2020).

Despite aspects of secondary schooling having demonstrated improvements in school life and its social environment, as well as improvements seen across many health-compromising behaviours (and compared to other developed nations), New Zealand's rates of preventable health problems remain high (Clark et al., 2013). Focusing on the healthy development of young people, the Youth2000 Survey Series by the Adolescent Health Research Group at University of Auckland recognised the need for improvements in areas of health and wellbeing of our youth (Clark et al., 2013). Building on large scale New Zealand adolescent health surveys conducted previously, these surveys used a comprehensive survey to collect information from large representative samples of New Zealand secondary school students. A variety of factors that contributed to their health and wellbeing was included, such as physical health, food and activities, home and family health, school achievement and participation, neighbourhood environment, and access to healthcare to name just a few (University of Auckland, n.d). Based on their overview - Health and Wellbeing

of New Zealand Secondary School Students in 2012, to prevent chronic disease later in life, the development of positive exercise and nutrition patterns and habits during adolescence was asserted to be important (Clarke et al., 2013).

In response to the problem of inadequate physical activity levels in adolescence, a range of sectors and ministries look to schools as a key site for positive action and change. Further, for schools to enhance the physical activity in young people to help improve their health and wellbeing. Not only do schools feature as a significant part within most young people's lifespan, a considerable amount of time is spent in/around a school setting. Analysing physical activity within the school setting, beyond assessing a student's level of activity, affords a unique opportunity to explore the multi-level influences impacting on students being physically active during their secondary school experience.

The Ministry of Education (2020), for example, positioned education as playing an essential role in supporting New Zealand. Schools are the best place for children and young people and marked as a key piece within the wider movement that promotes the wellbeing of children and young people. Within the education sector, a strong sense of wellbeing is important for children and young people to be able to meaningfully engage in learning. Quality education is said to be characterised by the provision of knowledge, skills, competencies and experiences in order for young people to succeed in life in ways that matter to them (MoE, 2020; Department of Prime Minister and Cabinet, 2020). Further, the New Zealand Curriculum (NZC, 2007) embeds physical activity within a key learning area, health and physical education (HPE) and learning through the physical, mental and emotional, social, and spiritual domains are said to encourage young people to enjoy "full, active, and satisfying lives" (NZC, 2007).

In summary, young people being active, within the wider concept of wellbeing, is positioned by key New Zealand government agencies and sectors as being important. Although several changes have occurred to address activity behaviours of young people across various governmental agencies, as well as across sectors such as health, education and sport, there is still work to be done. While clear recommendations for the types, duration and levels of physical activity have been defined by the Ministry of Health, there are clear discrepancies in whether young people achieve these guidelines or not. After investigating the context in which physical activity of young people exists, there is a clear gap in how young people are supported to establish lifelong and positive behaviours such as regular physical activity.

What we Know About Physical Activity in Young People

Given the current problem of the sub-optimal levels of physical activity in school-aged New Zealanders, it's important to review what we know about factors that lead to or limit physical activity in young people. This section will shed light on what we currently know about the activity levels of adolescents, the correlates to physical activity, activity in-relation to health, and outline how the problem of inactivity has been addressed across the literature.

Levels of Physical Activity

Regular and adequate levels of activity are argued to contribute to wider healthy behaviours and outcomes, and how literature discusses these recommendations and assesses the magnitude of effect is diverse. One study examined adolescent physical activity over time and identified the impact of multiple factors on physical activity patterns over time. The patterns and determinants of physical activity in US adolescents was studied by Kahn et al. (2008). Accelerated longitudinal analysis was used to describe trajectories of physical activity from 1997–1999 and to determine associated factors. The effect of multiple individual, parental, and environmental factors on initial activity levels and the rates of change in adolescent physical activity was assessed. A total of 12,812 participants (and their mothers) involved in the Growing Up Today Study aged between 10 to 18 years were included in the study. Generally, the findings reported gendered differences with a higher number of hours of physical activity found in boys than girls aged 9 to 12. A greater increase in physical activity levels occurred in girls compared to boys after age 12 and findings showed physical activity levels declined from about age 13 (more slowly for girls than boys). Boys' mean hours of physical activity ranged from 7.3–11.6 hours per week and for girls, from 8.0 –11.2 hours. Across findings, Kahn et al explained a decline in physical activity begins at age 13 to 15 years and suggested that future attempts to increase activity levels should occur prior to this age. A number of variables across individual-level, environmental and parental factors (e.g., social self-esteem and attitudes surrounding physical activity, body shape/fitness, body mass index, parental influences, and environmental barriers) were shown to be associated with physical activity level at baseline, with only one factor found to have predicted change in physical activity over time - age.

Various approaches have been taken across researcher to identify factors related to inadequate activity levels in children or adolescents. Kahn et al looked predictors of physical activity; other researchers have focused on the relationship between physical activity and health and wellbeing. Hallal, Victora, Azevedo and Wells (2006) offered a systematic review of evidence surrounding the short- and long-term physical and mental health effects of adolescent physical activity. Although they argued that the definition of recommended physical activity in adolescence was important but comes with a number of challenges. Hallal, Victora, Azevedo and Wells used a conceptual framework of how adolescent physical activity may contribute to adult health and overall, findings showed several pathways by which adolescent physical activity may be beneficial for physical and mental health, thus asserting its unequivocal advantages. For example, physical activity in adolescence was found to be a strong contributing factor on adult physical activity consistently across the 13 studies identified. However, due to the complexity of adult physical activity, the degree of this relationship was not clear. Further, studies around adolescent physical activity and adult morbidity were limited but a long-term protective effect was found for adolescent physical activity on bone health. Most results were negative between physical activity and risk factors for cardiovascular diseases; however, sedentary behaviour and poor physical fitness were also found to be associated with adult health outcomes. The authors made several claims: that the benefit of promoting adolescent physical activity was supported; that the domains of adolescent physical activity were different to adulthood; that the threshold for benefits may vary considerably; and therefore, guidelines should not be solely based on physical health benefits (Hallal, Victora, Azevedo & Wells, 2006). In sum, the amount of physical activity required to gain the proposed health benefits varies and further work is needed around the optimal amount of physical activity in adolescents.

In response to the lack of evidence surrounding the associations between the health habits in young people and their physical activity levels, Pate, Heath, Dowda and Trost's (1996) study aimed to determine whether the less physically active are at increased risk. Using data from the Youth Risk Behaviour Survey (in the US in 1990), 4293 survey respondents were categorised into low or high active groups for the first analysis and in relation to relevant activity recommendations. The analysis found that low physical activity was associated with the occurrence of several other negative health behaviours (Pate, Heath, Dowda & Trost,1996). Specifically, cigarette smoking, marijuana use, poor dietary behaviour, television viewing, failure to wear a seat belt, and

perception of low academic performance were all associated with low physical activity levels. As predicted, for the high active group, participation in school sports was considerably higher than in the low-active group. While causality was not a feature of this study given the cross-sectional design, it was suggested to further explore physical activity in youth and its potential to reduce the prevalence of other health behaviours.

As shown across literature, the problem of inactivity is often placed alongside health problems with physical activity applied as a preventive tool for health risks and was also reflected in Tremblay et al.'s (2011) systematic review of the relationship between physical activity levels and health risks. Through the meta-analysis of 232 studies aimed to investigate the relationship between sedentary behaviour and health indicators, the qualitative analysis revealed a dose-response relation between increased sedentary behaviour and unfavourable health outcomes. In sum, an association was found between more than two hours per day of sedentary behaviour and negative health indicators. That was for all study designs, across all countries, using both direct and indirect measurements, and regardless of participant sample size. The negative association found between sedentary behaviour and health indicators included negative body composition, decreased fitness, lowered self-esteem and pro-social behaviour and decreased academic achievement.

Supporting Tremblay et al.'s findings which suggested that lower health risk was in fact associated with decreasing any type of sedentary time was Goran, Reynolds and Lindquist's (1999) paper. These researchers investigated the role of physical activity in the prevention of obesity in children and located their study in what they called an epidemic of obesity in children. Goran, Reynolds and Lindquist provided a thorough discussion of current patterns of physical activity among children and reviewed past behavioural interventions that promote physical activity among children. In sum, the relationship between physical activity and health was discussed with some clarity provided around the extent to which physical activity affects health and/or health risks.

Motivations of Physical Activity

While multiple factors were found to impact on the physical activity in young people, research often focuses on the individual-level factors and determinants of behaviour, such as the motivations of adolescents being active or engaging in sedentary behaviours. For example, Power et al. (2011) sought to understand factors that influence children's physical activity patterns by taking a motivational perspective. Their study offered an example of a small but robust study

aimed at improving health and preventing obesity among middle school students. Power et al. examined the relationship between motivation, cardiorespiratory fitness, and weight status (defined as obese or non-obese). Self-determination theory and a correlational, cross-sectional design was employed by Power et al. Students completed attitudinal questionnaires about physical activity and self-determination on a computer-based system and participated in a number of fitness performance, health behaviour, and anthropometric assessments. Results found lower intrinsic motivation scores for obese adolescents compared to non-obese and cardiorespiratory fitness mediated the relationship between motivation and weight status. In other words, adolescents more fit and intrinsically motivated for physical activity were less likely to be obese. In turn, the responsibility of being active was situated with the individual. Due to the nature of this study, drawing conclusions about the direction of causality was not possible (Power, Ullrich-French, Steele, Daratha, & Bindler, 2011).

This was an example of research which adopted individual-level approaches to seek individual-level explanations to understand the differences in physical activity. Surprisingly, key conditions within self-determination theory related to social and environmental factors were not given much attention. Including competence (effectively dealing with environment) and relatedness (effective relationships) which are necessary in self-determined motivation, well-being, and growth. Further, little attention was given to what led to the motivation of participants or looking to the role of social support. For example, consideration was given to examining social factors such as parents, teachers, and health practitioners in terms of their role in supporting autonomous motivation. Although, Power et al highlighted this as a limitation of their study, this points to a wider, concerning patter where social and environmental factors are often excluded from psychological research exploring physical activity.

One notable exception to this pattern comes from Haverly and Davison's (2005) study which considered family and peers as possible sources of activity motivation alongside individual factors. They aimed to understand the link between individual level factors that motivated adolescents to be physically active and while having acknowledged the relevance of social systems external to the individual. Assessment of physical activity, rather than the measurement of self-determining factors, was argued to be an effective way to better understand the health behaviours of youth. Focus was given to factors relating to the individual, family, and peer factors that may be associated with motivation, as part of the larger context that shapes human behaviour. Using a

cross-sectional design, adolescents provided weight data and completed a number of self-reported questionnaires surrounding activity motivation, physical activity levels and perceived sport competence. Four factors were identified in the factor analysis which conceptually represented personal fulfilment motivation, weight-based motivation, peer motivation, and parent motivation. Findings showed personal fulfilment (such as desire to be active or enjoyment) as the strongest motivating factor for adolescents. Weight-based motivation was negatively associated with physical activity and results suggested parents and peers may influence adolescents through other mechanisms such as direct facilitation. By using a more contextual approach, the idea of where the responsibility of being active sits was challenged. Haverly and Davison provided a strong example of the usefulness of examining other key sources of motivation within the context, other factors related to the individual, parents, and peers, which can also help guide the development of effective physical activity programmes or interventions.

Interventions to Increase Physical Activity

The variable nature of young people's physical activity is also reflected through the array of approaches taken to increase physical activity levels, and with innovation called to drive future change (Baranowski, 2019; Booth & Okely, 2005; Pearson, Braithwaite & Biddle, 2015; Pate & O'Neill, 2009). As such, differences are found across relevant research with studies conducted within school or outside of school, at times with focus on girls only, and with differences in the types of activities researched. The diverse approaches taken to understand and then increase activity levels of young people works to suggest there is not one solution and that a number of complexities are involved.

For example, in their review, Goran Reynolds and Lindquist (1999) found that few intervention studies targeted policy and physical environmental strategies, despite evidence that causes of obesity are environmental and despite the acknowledgment of familial, community and environmental barriers to physical activity. Another researcher looked to develop a universal approach to increase physical activity through a GoActive intervention. For Corder, Schiff, Kesten and van Sluijs (2015), participant engagement was a key consideration and through their systematic reviews and longitudinal analyses of change examined, six themes were identified to encourage adolescents to be active - choice, novelty, mentorship, competition, rewards and flexibility. As a result of adopting an evidence-based iterative approach, evidence was transformed into an adolescent physical activity promotion intervention 'GoActive', developed to increase

physical activity through increased peer support, self-efficacy, group cohesion, self-esteem and friendship quality (Corder, Schiff, Kesten & van Sluijs, 2015).

Furthermore, one systematic review summarised existing evidence on interventions that aimed to increase physical activity and assessed their effectiveness (Mannocci et al., 2020). Relevant literature published between 2021 and 2017 was analysed with 30 studies that met the inclusion criteria. The efficacy of interventions was assessed by way of level of physical activity and body mass index outcomes for these interventions developed across different settings. With mixed results found for the effectiveness of interventions, the majority that were found to promote physical activity in young people were multicomponent and were implemented in the school setting, albeit having increased physical activity by a small amount. A further two studies found to be effective interventions were in the family setting and one in the community. Interventions seen to be most effective included physical activity in the school curriculum, were long-term, involved teachers and had the support of families as key characteristics.

Complexity of Physical Activity

Although it is important to recognise the social, environmental and personal factors, studies do highlight the complexity of and associated challenges of taking such an approach. As the research I review below shows, there is a vast array of individual, social, environmental, and contextual variables involved. A study by Vilhjalmsson and Thorlindsson (1998) used a representative national survey to investigate factors related to physical activity in Icelandic adolescents (n=1131). A multivariate framework was adopted to examine whether physical (illness or injury), psychological (beliefs, attitudes, behaviours), social (physical activity and support of others) and demographic factors were related to physical activity. Results showed a number of important points: male and higher social class were correlated with more physical activity; medical conditions were unrelated to physical activity; socialisation (modelling) into physical activity depends on the agent (e.g., father, friend and older brother) as well as the context (emotional vs non-emotional); paid work and TV-viewing were related to less activity; and schools were shown to be key agents of socialisation into physical activity. Factors found to influence and increase physical activity were attitudes and beliefs, including the importance of sport and of health improvement in relation to being active and satisfaction with mandatory gym classes in school. Interestingly, sociable adolescents were also more likely to be active which suggests the responsibility of young people being active can be shared (Vilhjalmsson & Thorlindsson, 1998).

Overall, this research showed a range of factors are related to physical activity in adolescents, such as social, physical, psychological and demographic factors.

Within the extensive but varied research on physical activity, several reviews have been conducted to explain the wide range of factors that may promote or inhibit physical activity and which provided a synthesis of literature. For example, the aim of Sterdt, Liersch and Walter (2014) was to integrate knowledge of key variables affecting involvement in physical activity. In their systematic review, they identified the promoting and inhibiting factors (also referred to as correlates) associated with the young people's physical activity (aged 3–18). A systematic database research was carried out with 16 correlates identified as consistently associated with physical activity of children and/or adolescents: sex, age, ethnicity, parental education, family income, socioeconomic status, perceived competence, self-efficacy, goal orientation/motivation, perceived barriers, participation in community sports, parental support, support from significant others, access to sport/recreational facilities und time outdoors. The results showed the complexity of physical activity behaviour and which can be influenced by a multitude of biological, psychological, sociocultural and environmental factors.

In conclusion, the previous studies were chosen to demonstrate the differences in how researchers understand physical activity and position physical activity in a way to address problems relating to the health and wellbeing of young people. Physical activity levels were characterised by gender differences and with an evident decline in levels between 13-15years. Physical activity was positioned to be associated with health, health risks and health behaviours but the magnitude of this relationship was not clearly defined across the literature. While positive physical activity-based behaviours can often be unpacked and explained using individual-level factors, such as motivations or self-efficacy, for a complex problem such as the sub-levels of physical activity in young people, the individualised approach only offers limited insight. The aforementioned studies offered a vast array of factors or correlates to physical activity up for consideration when increasing physical activity levels. With the social, environmental and contextual factors considered to be just as important, but often overlooked. To continue unpacking the complexities surrounding physical activity, the next section will look to further literature to consider different ways to understand the physical activity levels of young people by exploring the school-based context in which young people spend a considerable amount of time.

Physical Activity in Schools

Above, the implications of young people being active, how the problem of inactivity is understood and the factors that impact on physical activity were presented. Across the research discussed, the school was often acknowledged for being an important site for which physical activity interventions can be effective. It is this body of research that I review below and use to lend support to the effectiveness of focusing on school-based factors. A review of how physical activity is understood within school context is provided by way of utilising insight from those in positions of influence within the school context for a different perspective. An analysis of positive physical activity-based behaviours within classrooms and school-wide is provided with the different approaches and models used to address the problem of sub-optimal physical activity levels in school is also discussed.

Perspective Taking

This section explores what is happening with physical activity in schools and the different perspectives taken, such as looking at the teachers, the classroom and the whole school. McMullen, Kulinna and Cothran's (2014) study explored classroom teachers' perceptions of incorporating physical activity breaks into their classroom and the researchers aimed to determine specific features of preferred activity breaks. The Comprehensive School Physical Activity Program (CSPAP) was a key feature of this study. The purpose of a CSPAP is to maximise participation through the increase of quantity and quality physical activity opportunities within schools and across research, schools were recommended as a key setting for increasing youth physical activity. Five components were seen to independently and collectively increase physical activity levels and form the CSPAP approach: (a) physical education, (b) physical activity during school, (c) physical activity before and after school, (d) staff involvement, and (e) family and community engagement. For McMullen, Kulinna and Cothran's study, teacher perceptions were considered to sit within this conceptual framework and were encouraged to try at least one physical activity break per week and use as many activity breaks as they wanted. Semi-structured interviews and the teachers' reflective journals were used from twelve elementary and high school classroom teachers from one Indigenous school district in the United States. Data was analysed inductively by conducting systematic searches for patterns across data types and within the key themes, distinct

characteristics revealed what was considered when selecting and evaluating activity breaks. Findings indicated that easy to manage, quick, academically oriented and enjoyable activity breaks were preferred by teachers, the risk of misbehaviour and managing movement in classrooms also influenced the likelihood of activity breaks (McMullen, Kulinna & Cothran, 2014). These findings have practical implications when considering physical education, teacher education and professional development that targets classroom teachers.

While maintaining the focus on perspective-taking, another study aimed to investigate barriers experienced by physical education teachers and perceptions of barriers that students experience in accessing physical education and physical activity opportunities in their schools. Jenkinson and Benson's (2010) study 'Barriers to Providing Physical Education and Physical Activity in Victorian State Secondary Schools' brought attention to institutional and teacher barriers and the plethora of influences found in the school environment. An online questionnaire was completed by 115 physical education teachers and provided school-based information alongside: teacher-ratings of the facilities and equipment; the school culture and how physical education was positioned within the school context; and how they thought physical education was perceived by the whole school community, other staff and the management or leadership team. Jenkinson and Benson found mostly institutional-barriers to the provision of physical education, which works to shift the responsibility of physical activity away from young people. Potential obstacles to student participation were recognised by two-thirds of respondents as the teacher's own difficulties in engaging students when teaching. Teachers also perceived the student's low levels of interest to participate to be influenced by students themselves or by their peers. Overall, the barriers-based study provides a solid example of the complexities that can be found in school environments and that schools should be recognised as an influential determinant of participation in physical education and in physical activity (Jenkinson & Benson, 2010).

Impact of Physical Activity

Moving onto literature that considers the impact of physical activity in schools, two papers will be discussed to demonstrate the positive effect that physical activity in school can have. First, Stead and Nevill (2010) reviewed academic peer-reviewed journal articles and other sources of information (i.e., published reports) to examine the impact of physical education and sport on academic achievement and on those wider social outcomes. To summarise Stead and Nevill's key findings, research suggested that physical education, physical activity or sport maintained or

enhanced academic achievement; classroom behaviour was improved by additional organised physical activity in or outside the classroom and within the school day, and consequently may enhance academic performance; and finally, physical activity and several components of mental health (such as self-esteem, emotive wellbeing and future expectations) had a positive association, which may impact on academic achievement. These findings have implications for how change agents could look to engage with schools, leading with these potential benefits for example. Despite an increasing collection of findings demonstrating that no negative impact on academic performance results when integrating schools and physical activity, physical education is often compromised for the sake of achieving in other curriculum areas (Hernandez, 2014; Howie & Pate 2018).

Second, and to further understand the positive impact that can result from physical activity within school, one systematic review and meta-analysis focused on classroom-based physical activity interventions (Watson, Timperio, Brown, Best & Hesketh, 2017). Using a predetermined set of inclusion criteria, the primary aim was to evaluate the impact of classroom-based physical activity interventions on academic-related outcomes and to evaluate the impact of these lessons on physical activity levels. Of the 39 studies surrounding the effect of classroom-based physical activity on academic-related outcomes, including classroom behaviour, cognitive function and academic achievement, most showed improvements in academic-related outcomes. Consistent with previous reviews, Watson et al. concluded that positive effects (or no effects) may result from physically active lessons and that classroom-based physical activity had a positive effect on academic-related outcomes and a significant positive effect on school engagement. While supporting the idea that classroom-based physical activity provides another way for children to be active, Watson et al also acknowledged the time limitations during class, suggesting additional opportunities for physical activity should be considered.

Interventions to Increase Physical Activity in Schools

The impact of physical activity was also a theme present across research on the factors that can influence physical activity in schools and explored across the different directions of school-based interventions that looked to improve physical activity of young people. One example was a study that explored the role of the classroom setting on a student's physical activity levels (Ee, Parry, IR de Oliveira, McVeigh, Howie & Straker, 2018). The intervention was focused on whether using standing desks within the classroom can modify standing and sitting behaviour as

well as musculoskeletal symptoms. While these researchers acknowledged the importance of not compromising the academic curriculum, schools were recognised for their potential to positively influence children's physical activity and health behaviours when implementing physical activity interventions. Ee et al. (2018) employed a within-subjects crossover study design and examined the short-term effects of a standing desk intervention in a classroom on students' (a) standing and sitting time during school hours; (b) physical activity and sedentary time during all waking hours; and (c) musculoskeletal discomfort. Ee et al. presented three key findings with the use of standing desks in classrooms: an increase in classroom standing time and a decrease in classroom sitting time; the likelihood of neck, shoulders, elbows and lower back discomfort in children was reduced; and children's overall sedentary and physical activity time may not be adversely affected by standing desks. Furthermore, Ee et al. acknowledged that addressing student's behaviour in school may have potentially improved their long-term health beyond school hours.

Taking a different approach to better understand how to promote physical activity in children and adolescents, Van Sluijs, McMinn and Griffin (2007) completed a systematic review of controlled trial-based interventions. The purpose of Van Sluijs, McMinn and Griffin (2007) review was to improve the negative trends in obesity by addressing insufficient levels of physical activity of children and adolescents through the physical activity promotion. In their search for interventions that promote physical activity in young people, 57 studies were identified (24 at adolescents, 11 of these were of high methodological quality). Almost all evaluated school-based interventions, and some which also involved the family or community. Self-reported questionnaires, recall instruments, using an objective measure assessing total physical activity, and direct observation to assess physical education related physical activity were the types of measurements of physical activity used across the studies. Key findings highlighted effective interventions that achieved increases in time active ranging 2.6 minutes to 283 minutes per week of overall physical activity. It was found that multicomponent interventions can increase physical activity in adolescents and involving the family or community in school-based interventions was encouraged as there is the potential to have a greater impact on levels of physical activity (Van Sluijs, McMinn & Griffin, 2007).

To complete my review of interventions to promote physical activity and of school-based interventions, below I consider research with an emphasis on sedentary behaviour among older adolescents. In Hynynen et al.'s (2016) analysis, the effects of school-based interventions have

been found to have small, short-term but significant effects on adolescents' physical activity and sedentary behaviour and with large differences found across interventions. As a result of their search of relevant literature, ten unique interventions studies were identified, seven with significant increases in physical activity, although small and short-term. Of those studies that measured sedentary behaviour, significant reductions in sedentary behaviour were reported. In their assessment, intervention characteristics included differences in length, delivery mode, intervention provider and intervention content, such as use of behaviour change techniques, and with variance found in their influence on intervention effectiveness. To increase physical activity, there were also key differences found in what the focus point was for interventions, including sedentary behaviours (and physical activity), behaviours related to energy balance, dietary behaviour, and obesity-related behaviours such as heart health knowledge/behaviours. However, Hynynen et al.'s review suggested focusing solely on physical activity or physical activity and sedentary behaviours, as targeting multiple health behaviours were less effective in promoting physical activity among older adolescents. Despite the provision of some clear guidelines for future research, Hynynen et al. acknowledged that overall, there was a lack of evidence around the promotion of physical activity and the reduction of sedentary behaviour of young people.

Potential of Physical Activity in Schools

Above, a brief overview of the different directions and the effectiveness of school-based interventions addressing physical activity in adolescents was provided. This literature maps onto the previous policy background section, showing that when school policy and procedure align, in partnership with the collective action of teachers, whānau and their community, schools are often regarded as having the potential to positively develop young people. Studies have shown that there is a direct relationship between school, health and physical education and students' academic success within and beyond school. However, research also points to the need for further consideration surrounding physical activity and the whole-school approach, the school environment, the role of teachers, of classrooms and of school communities. In addition, the different approaches taken to investigate these relationships will also be discussed.

Cultivating a physically active school culture and taking a whole school approach was argued as essential when addressing physical activity within schools (Hernandez, 2014; MoE, 2017). A whole-school approach looks to all aspects and people of the school to work in partnership to provide access, encouragement and programmes that enable all students to engage

in physical activity (Russ, Webster, Beets & Phillips, 2015). It needs partnership working between senior leaders, teachers and all school staff, as well as parents, carers and the wider community. My search on whole-school research and interventions highlighted differences in not only research approaches but also in defining what defined the multicomponent interventions within a whole school approach.

For example, Russ, Webster, Beets and Phillips (2015) conducted a systematic review and meta-analysis of multi-component interventions through schools to increase physical activity and highlighted a commonly used framework, the comprehensive school physical activity programs (CSPAP) approach endorsed to increase youth physical activity. The aforementioned framework was explained in detail previously but to summarise, it looks to maximise participation through the increase of quantity and quality physical activity opportunities and is made up of five components. Russ, Webster, Beets and Phillips examined the effectiveness of multicomponent interventions on youth total daily physical activity and electronic databases of published studies were searched within school-based interventions have found to have been minimally effective. While limited evidence of the effectiveness of multicomponent interventions was found, the reasons for this minimal impact were also unclear. Three intervention components offering the most insight into effectiveness is physical education, physical activity during the school day and staff involvement. To facilitate increased opportunities for student physical activity, two studies were identified through the sensitivity analysis and found to have contributed significantly to the overall effect size and used policy development or change. One study, Sallis et al., as cited by Russ, Webster, Beets and Phillips was also the only to demonstrate collaboration across components of a school. In alignment with the whole school approach and to increase student physical activity levels, this study involved staff in development sessions, focused on teacher instructional skills and implemented new curricula. Overall, this analysis provided insight into the potential to improve physical activity in schools by including those situated around young people and their wider setting to gain further understanding.

Approaches to Researching Physical Activity in Schools

Physical activity in schools is spoken about in many different ways and through reviewing the literature around factors that lead to physical activity in schools, I've shown how a range of approaches have been adopted. Many featured a psychological focus, but there are important studies that focused on the wider setting. For example, a systematic review by Hu, Zhou, Crowley-

McHattan and Liu (2021) used a social ecological perspective to investigate factors influencing participation in physical activity in school-aged children and adolescents. The social ecological model provided a framework under which the influencing factors were organised by the following categories: intrapersonal, interpersonal, organisational, community, and public policy. Of the selected articles they reviewed, seven qualitative and seven quantitative international studies met the inclusion criteria. From the social ecological model used as the framework to organise findings, the community level hosted the highest number of barriers and within the interpersonal level, the highest number of factors positively influencing physical activity were found. Common intrapersonal level factors influencing student participation of physical activity were gender, age, ethnicity, and self-concept. Interpersonal and organisation levels of the framework included support from friends, parents, and teachers and were found to be positive predictors of participation. At the community level accessibility of facilities and safe neighbourhoods were found to be crucial to participation in physical activity.

Another example of a broader approach used to understand factors that lead to physical activity in schools provided insight into the various elements that are brought to attention by looking at the school as an organisation. Rickwood's (2013) systematic review of the relationship between school culture and student's participation in physical activity used an organisation culture model as the framework. Their review looked to discern what aspects of school culture have been examined in relation to physical activity participation, the weight of evidence surrounding this relationship, and potential for future research. Of the 98 articles, three levels of school culture were used to categorise: (1) artifacts (e.g., physical layout or markings, dress styles, smells in school spaces, and even hanging visuals), (2) espoused values, and (3) underlying member assumptions. Artifacts included components of a school and are external representations of the beliefs and values of school members. A number of elements associated with physical activity were found be important and positively impact on participation: the overall experience of interacting with school artifacts was described to be associated with physical activity (e.g. spaces or equipment maintained, were relevant to the school context and used within school breaks); the importance of school-based, adult and student role models; the types of physical activity within the physical education classes; and the opportunities for physical activity all worked to influence participation. For example, traditional or team games (i.e., basketball, volleyball) during class had a negative effect on participation compared to classes that incorporated culturally relevant,

lifestyle, and small-sided games. Further, the explanation of opportunities for physical activity included components such as the number, quality, and size of school facilities. Rickwood finished his work asserting the need for future research to include insight from school staff on the relationship between organisational factors that positively affect participation in physical activity at school.

In conclusion, the above review of literature aimed to provide insight into how physical activity in schools is understood and increasing activity levels is addressed, while also asking questions of where responsibility was positioned by researchers. The different perspectives, approaches and models used to understand and address the problem of sub-optimal physical activity levels in school was also discussed. Through shifting the focus from individual explanations of inactivity to school-based factors impacting on physical activity, there are still clear gaps in what we know about the physical activity of young people within the layers of the school context. For example, looking at teachers and how teachers interact with students, school-based factors and physical activity.

A New Approach

By drawing together the strengths and limitations of research previously explained, findings helped shape the direction of future research. The previous studies were chosen as representatives of the wider literature and to demonstrate the differences in how we understand physical activity with the complexity of this phenomena affirmed. Researchers positioned physical activity to be associated with health, health risks and health behaviours, however across research, the magnitude or workings of this relationship was not clearly defined. For example, Power, Ullrich-French, Steele, Daratha and Bindler's (2011) acknowledged their research was limited due to excluding the influence of environmental and social factors in their study to understand differences in physical activity. In addition, a strength of Haverly and Davison's study was the usefulness of examining key sources of motivation by considering the context of other factors related to the individual, parents, and peers. Therefore, while physical activity-based factors and behaviours can be explained using individual-level factors, such as motivations or self-efficacy, the individualised approach only offers limited insight. The aforementioned studies offered a vast array of factors or correlates to physical activity up for consideration when increasing physical

activity levels, and with social, environmental and contextual factors considered to be just as important.

Furthermore, different perspectives, approaches and models used to understand and address the problem of sub-optimal physical activity levels in school were presented, with some key considerations for future research identified. Support for research to be grounded in school-based contexts was found across the literature including the increased level of physical activity seen as a result of school-based interventions compared to home or community for example (Mannocci, 2020). Through shifting the focus from individual explanations to school-based factors impacting on physical activity, there is the potential to have a greater understanding which can lead to a greater impact on levels of physical activity (Van Sluijs, McMinn & Griffin, 2007). For example, looking at how teachers interact with students and the associated school-based factors affords a space to identify interacting factors. As McMullen, Kulinna & Cothran's (2014) findings pointed out, consideration needs to be given to the practical implications involved when targeting teacher, classroom and/or school-based change. While research has supported looking to classroom-based physical activity interventions, the constraints of class time was also acknowledged, and thus the need to further explore opportunities for physical activity within the school beyond the classroom was recommended (Watson et al., 2017). In addition, Hynynen et al. (2016) found interventions delivered by school staff were less effective, thus raising questions around what other elements are involved within the school context. Within research, there are still clear gaps in what we know about the physical activity of young people within the layers of the school context, for example, little evidence connects physical activity to secondary school cultures.

Considering the complexities of school environments for future research is mentioned across the literature, for example, Jenkinson and Benson (2010) acknowledged schools as an influential determinant of participation in physical activity through their barriers-based study. The comprehensive analysis using the CSPAP by Russ, Webster, Beets and Phillips's (2015) showed the usefulness of multicomponent approaches and suggested consideration be given within and across the components of a CSPAP, for example, physical education, activity before, during or after school, staff wellness and family and community engagement. While Hu, Zhou, Crowley-McHattan and Liu (2021) provided an example of a different perspective, the relative importance of factors between the social ecological levels was not a feature. Further, Rickwood (2013) encouraged future research to include insight from school staff on the relationship between

organisational factors that positively affect participation in physical activity at school. To summarise, in this thesis I suggest a new direction is needed to explore the complexities surrounding physical activity. In the next section, I make the case for consideration given to ecological theory and the capabilities approach as an alternative theoretical framework to address some of these limitations and afford new understandings of physical activity within the school-based context in which young people spend a considerable amount of time.

Ecological Theory and the Capabilities Approach as an Alternative Framework

The final part of the current section moves on to consider the effectiveness of ecological theory and the capabilities approach as an alternative theoretical framework to gain understanding around adolescent health and wellbeing. I draw on both capabilities and ecological theory to guide this research exploring how people's capabilities to do something are enabled or limited in a particular system. Including contextual factors within research has shown to be a useful approach when looking beyond the individual, thus, this thesis will look to gain insight into how policy and national guidelines are understood and enacted by those in positions of influence and to shift the focus from an individual level problem. Then the features of the capabilities approach will be discussed and discussed in relation to the topic at hand.

Ecological Theory

Although research often focuses on individual/intra-individual issues like motivation for understanding physical activity and the promotion of activity, an ecological model offers the opportunity to explore the role of the environment. A key tenet of Ecological models is that positive human health behaviour can result from matching intra-individual attributes with environmental attributes (Spence & Lee, 2003). Adolescence is a particular developmental stage and ecological models have been developed to aid in the understanding of an individual and their behaviour in relation to the surrounding contexts and across a number of levels. Featured heavily in developmental psychology, Bronfenbrenner's ecological model explains the complex nature in a person's development inclusive of interpersonal and organisational components of a school's environment contributing to school's social ecology (Christensen, 2016).

Bronfenbrenner's model looks to analyse the different levels that influence the construction of adolescents' lifestyles, with emphasis placed on the importance of the environment (Cala & Soriano, 2014; Christensen, 2016; Ryan, 2001). Christensen (2016) highlights the significant role

that is played by the surrounding environment, the societal framework and/or organisational context in relation to the individual. When investigating young people and their lifestyles, relevant research argues for the importance of exploring the relationship between individuals and their environments, with consideration given to such potential influences that go beyond individual-level characteristics (Cala & Soriano, 2014; Spence & Lee, 2003). To simplify Bronfenbrenner's model, the various levels of influence can be broadly divided into *intra*-individual (person) and *extra*-individual (environment). According to Spence and Lee, extra-individual influences might include the natural and physical features of the environment as well as the social and cultural context, for example, considering the provision of safe spaces to do activity and what external factors may contribute to physical activity occurring. When exploring ecological theory in relation to the physical activity of adolescents, the idea of goodness of fit refers to individual and environmental attributes matching which can lead to positive health behaviour, improving either side can contribute to an improved goodness of fit.

Relevant research that looks at the environment in relation to physical activity in schools will be discussed and with the intention to demonstrate the effectiveness of applying ecological theory to the topic at hand. Across research, there was much variation in the way concepts related to the social, environmental, structural/natural, the physical features of the environment as well as the social and cultural context are described. For example, Wachs (1992, as cited by Spence & Lee) outlined the usefulness of a structural model of the environment (SME) for describing environmental influences on physical activity. Spence & Lee argued that not only is physical activity behaviour influenced by biological and psychological factors, but also by the environmental settings interacting. To exemplify how extra-individual factors and the ecological model can feature in the promotion of physical activity, I adapt the SME framework to show the staff's interaction with environmental factors while enabling physical activity of students, and across the levels. Using Wachs' description of the different levels of the system, the *microsystem* would be the immediate setting within which staff would interact with people and the school environment. Encompassing the microsystem, the *mesosystem would* include two or more microsystems interacting to exert influence on physical activity behaviour, such as support of staff and the physical environment. Also worth noting, a key feature across the levels is considering what is happening within and between settings (Spence & Lee, 2003). The *exosystem* dimensions are composed of the linkages and processes between two or more microsystems, and could include

the school supporting staff enabling physical activity or the school's policy on physical activity, as examples. The most distal level is the *macrosystem*, this would be the larger sociocultural context in which the staff reside (e.g., the school). Building on the theoretical background of ecological models, Spence and Lee presented a relevant example of a framework which I adapted to demonstrate how the environment can have both direct and indirect effects on physical activity.

Moving on to consider adaptive or maladaptive behaviours, especially with regard to any health-related consequences, an effective individual–environment fit can also be improved by looking at a number of factors that are said to intersect. In their discussion of sedentary behaviour epidemiology, Gorely and Ryde (2018) highlighted the importance of physical and social environmental levels of analysis. Their work provided a summary of environmental correlates of sedentary behaviour, addressed potential theoretical approaches, and examined the evidence for the effectiveness of environmental interventions on sedentary behaviour. Gorely and Ryde found evidence to suggest changes in the environment are effective to address sedentary behaviour. While some research looked to individual-level factors and determinants of behaviour, such as the motivations of adolescents being active or engaging in sedentary behaviours, Gorely and Ryde highlighted the need for more attention to be given to the interactions between the individual and the social and physical environments, in turn, gaining a better understand how settings can influence behaviour. With the inherently complex social structures of schools, understanding the influence of the environment on individuals is important to develop a richer understanding of sedentary behaviours in a variety of contexts. Furthermore, the authors argued that not enough attention has been given to how the physical environment of the school can influence sedentary behaviour.

To summarise, the features of ecological theory included social and environmental factors. Studies using this approach highlighted the benefits of ecological theory in orienting research to consider the context specific environmental influences, from which, gain a richer understanding of factors surrounding the physical activity of young people. While ecological theory orientates researchers to look at the social and environmental elements of behaviour, I argue below that combined with the capacities approach, an appropriate framework can be developed to address the complexities of how to enhance physical activity in young people at school. The next section seeks to justify the application of the capabilities approach in exploring physical activity of young

people, shifting away from individual-level adolescent factors toward capabilities of staff within schools.

Capabilities Approach

The previous literature review has shown the gaps in research surrounding physical activity behaviours of young people therefore, insight from school leaders and staff to identify the social and environmental factors involved with physical activity at school is suggested. While considering the different features of the environment (natural, physical and social) that allow staff to enable students to undertake physical activity and to conceptualise this relationship, I turn to the capabilities approach and literature.

The notion of capabilities according to economist-philosopher Amartya Sen, encompasses what activities we are able to undertake (doings) and the kinds of persons we are able to be (beings). Within the capabilities approach, the idea of real freedom goes beyond having the means or potential to do something they want, with freedom requiring the substantial opportunity to achieve what they want with what they have (Robeyns & Byskov, n.d). As an approach, focus is shifted away from merely the resources/means one has/has access to, and toward exploring the potential to do/be with such resources/means. The capability approach helps to argue that there is a high probability that if an individual chooses a particular functioning (e.g., enabling physical activity), then it is assumed that this functioning lies within their capability set (despite whether or not it is acted on) (Cookson, 2005). Rather than a strict theory of wellbeing, the capability approach and the encompassing notions of capabilities and functioning recognise human needs as well as personal and contextual circumstances. Overall, the applications of the capability approach are wide-ranging and for many different purposes, and as an approach, lends itself to interpersonal comparisons and to evaluating the capabilities of one person at one point in time.

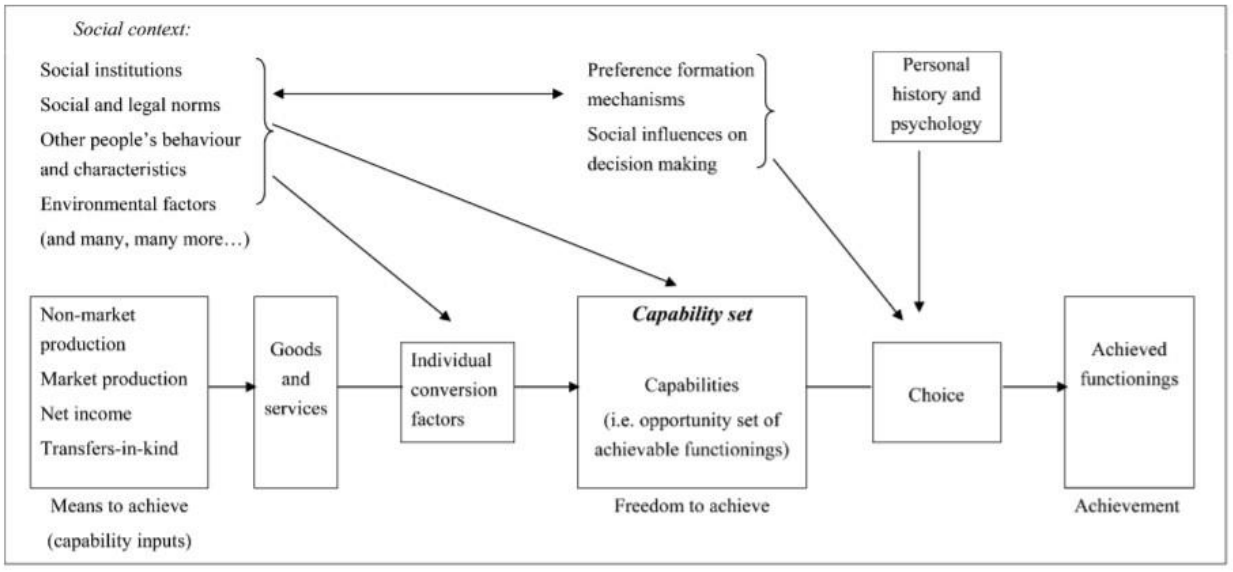
Further developed by Martha Nussbaum and numerous other scholars, the capability approach gained increasing traction in advancing understanding around complex health issues (Till, Abu-Omar, Ferschl, Reimers, & Gelius, 2020). Originally developed by Amartya Sen in welfare economics, the capability approach has gained momentum within the health field. Previous interventions and research often looked to focus on outcome improvement or achieved functionings, and neglected the environmental or social components that may in fact impact on the outcome itself. Gandjour (2008) defined a functioning as an achievement and are different aspects of living conditions and to provide a brief overview of the many explanations, functioning

achieved depends on the individual's current capability set. It is assumed that a person's capabilities are founded on resources that can be translated into capabilities. Conversion factors are seen to contribute to translated capabilities and include: individual, social and environmental factors (Gandjour, 2008; Till et al., 2020). Wellbeing freedom, agency freedom and achievement are key concepts within the definition of Amartya Sen's capability theory (Prah Ruger, 2010; Robeyns & Byskov, n.d.). To summarise the key concepts within this theory, it is the achievement of individual states of well-being; a person's freedom to achieve individual states of well-being; achieving one's goals and objectives; and the freedom to achieve what one values and wishes to achieve and what one pursues. As a theoretical framework, the capability approach claims, "what the person is free to do and achieve in pursuit of whatever goals or values he or she regards as important" is implied (Prah Ruger, 2010, p.203).

As an overview, Robeyns (2005) presented a theoretical survey of the capability approach, its usefulness to provide a tool and a framework to conceptualize and evaluate such things as aspects of wellbeing was demonstrated. A core feature is its focus on what people are effectively able to do and to be; that is, on their capabilities and functionings. As illustrated in Figure 1, Robeyns' stylised non-dynamic representation of a person's capability set and her social and personal context distinguishes, there are other means that function as 'inputs' in the creation or expansion of capabilities, such as social institutions broadly defined. Using the capabilities approach as a framework may enhance compliance by shifting focus from enforcing health behaviours to focus on positive opportunities that may be considered meaningful and potentially offers a new direction for addressing the problem of the inactivity of young people. Applying the topic of this thesis to Figure 1, provides a framework in which to lean on the individual conversion factors and capability sets (e.g., capabilities that one can choose from) (Robeyns, 2005). In particular, to consider the social context would provide insight into factors influencing choice, conversion factors and one's capability set. This is relevant to support the idea of exploring factors beyond compulsory physical education in schools or a student's level of activity and affords the space to explore personal, value, social, structural and environmental factors surrounding the physical activity of young people.

Figure 1

Framework on a Person's Capability and Surrounding Factors



Note: This figure illustrates a framework to capture a person's capability set and the surrounding social and personal context (Robeyns, 2005).

To demonstrate the flexible application of capability theory, the concept of health capability was developed. Building on capability theory, health capability brings into focus the conditions that affect health and one's ability to make health choices, therefore, integrating agency and outcomes (Prah Ruger, 2010; Robeyns & Byskov, n.d.). Inclusive of more than mental and physical health functioning, health functioning is the outcome of the action to maintain or improve health. To further understand health capability, the interactive nature of both individual and societal factors must be explored, in other words, health capability depends on the role of external environment influences, as well as giving consideration to social factors at play. To borrow Prah Ruger's (2010) definition, capability is also seen as an ability, resources or a condition capable of being converted or translated into use. For some, the external environment may be negotiated more effectively to achieve health, than for others. Prah Ruger also explained, conversion factors such as individual, social and environmental factors work to translate such capabilities. Although

complex, health capability as a concept positions human motivation and the multiple internal and external factors that impact individuals as central, which are key points relevant to the topic at hand.

Another example of the application of theory is Stephens and Breheny's book 'Healthy Ageing, A Capability Approach to Inclusive Policy and Practice', which adopted the capabilities approach as a framework. An alternative view of the functioning of caring and how valuing this function can work to influence other capabilities was gained. Stephens and Breheny's work centered around the topic of ageing well, and was underpinned by Nussbaum's list of essential capabilities to understand the experiences of people providing (informal) care for older people. Nussbaum's list includes: normal life span; bodily health; bodily integrity; senses, imagination and thought; emotions; practical reason; affiliation; other species; play; and control over one's environment (Anand, 2005). As Stephens and Breheny (2018) explained, Sen's approach to capabilities, which purports the notion of having the freedom to lead a life they value, can be used to distinguish between those that choose not to function in a particular way and those who perhaps cannot do so (Wong & Breheny, 2018). Stephens and Breheny (2018) applied these ideas to the experiences of older people and their own understandings of ageing well and challenging current discourse around successful ageing, including identifying wider factors that can mediate wellbeing, and thus demonstrating the usefulness of the capability approach. The implications of their work for schools, this distinction may be particularly important where the responsibility of young people being active can be assumed to be mostly that of the students. Giving attention to the wider social and environmental supports can again, help to move away from the promotion of individual responsibility and encourage a wider perspective to addressing the problem at hand. Not to mention, the lack of opportunity for staff to enable the physical activity of their students works against the idea of supporting students holistically. As exemplified in previous work, using the capabilities approach can provide a space to identify the values, needs and to better understand the interdependent and relational nature of people, organisations and the environment (Stephens & Breheny, 2018; Wong & Breheny, 2018). Through the capabilities approach, there is opportunity to provide insight into how schools and staff value activity and what factors are involved to support young people to be physically active.

Although physical activity-based research adopting the capabilities approach is limited, along with the work of Stephens and Breheny, the relevance and usefulness of this approach within

empirical research was demonstrated. For example, Ferrer et al. (2014) looked to the capability approach framework measuring capability for healthy diet and physical activity. Applying a community-based participatory model to conduct focus groups of adults with obesity or diabetes mellitus from an economically disadvantaged Latino community. The Capability Assessment for Diet and Activity (CADA) was then developed and found to be useful for systematically assessing communities and their capabilities. CADA helped to explain and address the prevalence of unhealthy behaviours, bringing to the surface factors pertaining to personal values and social, structural and environmental factors involved with diet and activity behaviours. Interestingly, CADA is the only one to directly measure capabilities for physical activity by specifically asking about resources, environmental, social and individual factors. In sum, Ferrer et al.'s research which evaluated people's real freedoms to pursue their values works to highlight the potential of the capability approach in exploring personal and environmental determinants.

Another example is Yeung and Breheny's (2016) research that looked to understand how personal, social and environmental conversion factors can convert (or not) the characteristics of the commodity into a functioning. This study used the capability approach to explore the determinants of subjective well-being among older people. Through their analysis, the relationships between the commodities (number of chronic conditions reported, physical and mental health), and personal and environmental factors (economic living standard and discrimination), on the capabilities of older people to achieve well-being was examined. Findings asserted that the availability of real opportunities was key and that capabilities mediated the relationship between commodities and well-being. Again, the capabilities approach was a useful framework for highlighting the multidimensional nature of well-being in later life.

Another example of research underpinned by the capability approach was Sauter, Curbach, Rueter, Lindacher and Loss (2019) investigation into which capabilities senior citizens perceived to have available to them in order to be physically active. Findings identified 11 capabilities considered important in leading an active lifestyle and these were grouped by four domains: individual resources, social interactions and norms, living conditions and organisational environment. The need to consider a wider range of capabilities that individuals can freely choose on social and environmental levels was highlighted in their findings. Sauter et al. also showed how the capability approach can highlight the need to consider factors beyond the individual, bringing attention to such factors that can impact one's capability.

While a number of other tools are reported to distinctly measure capabilities in the health promotion space and despite variations of questionnaires used across different target groups, no specific tool is available to objectively and comprehensively measure all aspects of health-related capabilities (Till et al., 2002). With this approach focused on capacities, rather than say context specific issues, it can be applied across contexts to a lot of different research topics and may contribute to why the capabilities approach is featured in research across topics, fields and settings. As such, developing methods that align with the capacity approach and by designing research that fits with specific contexts can be considered.

As a concept, the capabilities approach can also be seen akin to human agency, people's ability to do something, and is often adopted by the social work and education fields. Here, the application of this approach was often to assess the ability to foster change within an individual's contexts or assessing one's quality of life (López Barreda, Robertson-Preidler & Bedregal García, 2019). In contrast, Cookson's (2005) investigation into the applicability of the capability approach to the economic evaluation of health care programmes also reflected the diversity to which capabilities research sits. Here, the complexity involved in making interpersonal comparisons of the value of individual capability sets, and the feasibility to apply the capability approach indirectly was investigated. Robeyns (2005) argued that capabilities-based research demonstrated the benefit in operationalising the capabilities approach within the context of health to measure capabilities for health-enhancing physical activity. Furthermore, Till et al. described how the capability approach can be used to look at people's real opportunities to value and realise their options of particular functionings (e.g., enabling physical activity) and shift away from the causal nature of individual behaviour (e.g., student's physical activity levels).

In conclusion, a variety of research has identified the value in applying the capabilities approach across a diverse range of issues or settings. In turn, this approach has shown to be useful to look at factors impacting on behaviours related to health and well-being that locate the person within their wider social and environmental context, particularly in complex contexts. Given the complexity of physical activity within the school context, the potential of the capabilities approach to be applied to the topic at hand is acknowledged. To identify opportunities for physical activity within a school site which may be considered meaningful and desirable, as well as to highlight existing capabilities beyond the perceived "force" of compulsory physical education as a way to address the inactivity of young people is recognised as advantageous. Further, the capabilities

approach helps to challenge where the responsibility of young people being active belongs, beyond students. Analytic attention was given to how environments and contexts can support or limit people in their capabilities to do particular behaviours, and thus, ecological theory and the capability approach as a new framework was adopted in my research to consider factors that may be enhancing or inhibiting one's capability within a school-based context.

Research Aim

The above policy and government research highlights how being physically active is valued because it will improve the wellbeing and educational outcomes of young people, yet does not occur in schools to the level required (Ministry of Education, 2020). While existing research also points to the need to address physical activity policy in schools, the complex nature of implementing change is highlighted and is suggested to consider alignment of policy, practice within environmental infrastructure. To address this issue and better understand what factors enable and limit the capabilities for school staff to enable physical activity in their students, the current thesis looks to bring attention to personal and school-based factors (social referred to as support of staff, organisational and environmental) influencing the activity of our young people in schools. Using key areas that are prioritised across the health, education and wellbeing sectors, the current research was underpinned by the idea that being physically active is valued because it will improve the wellbeing and educational outcomes of young people (Ministry of Education, 2020). The literature review also highlights different approaches taken to understand the physical activity of young people and has made a case for the benefit in using ecological theory alongside operationalising the capabilities approach. This approach to exploring health-related behaviours is relatively scarce. In highlighting the complex nature of the school context, existing research also points to the need to address the gap in literature beyond student's individual-level factors and take a new direction to address factors surrounding physical activity in schools. The current study looks to shift away from assessing a student's individual output and toward exploring the capability of those in positions of influence intersects with the physical activity of students and across school-based layers (Robeyns, 2005).

It is important to gain further understanding into the complex nature of young people's physical activity, thus the decision is made for the current study to focus on the capabilities of those in positions of influence - school staff and the wider ecological factors at play, while also

exploring the context in which physical activity of adolescents sits (Goran, Reynolds & Lindquist, 1999). As a more novel application of capabilities approach to health-related behaviour, this study aims explore how capability and value intersect throughout the school-based layers in ways that may enable or limit young people's engagement with physical activity in schools. Focus is on secondary schools as they are regarded as an influential determinant of participation in physical activity and are a site in which lifelong behaviours can be developed, making a significant contribution to the experiences of young people.

This study sought to explore how secondary school staff perceive and interact with factors within a school system, in the context of national guidelines for physical activity in secondary schools, that may work to enable the physical activity of students. With this aim in mind, this study was designed to explore how staff experience their perceived capabilities to enable students to be active at school in relation to personal and school-based (social, organisational and environmental) factors, asking the following research questions:

1. What social and organisational factors support or limit staff's capability to enable physical activity of students while at school?
2. What environmental factors influence staff's capability to enable physical activity?
3. What personal factors influence staff's capability to enable physical activity?
4. Do decile or location factors have a relationship with perceptions of capability - Are rural-located school staff experiencing different levels of capability compared to those staff based in urban locations? Are staff in low decile schools experiencing different levels of capability compared to staff from medium or high decile schools?

These questions formed in the current study reflect a multi-level approach by looking at the personal and school (social, organisational and environmental) factors at play. Such insight from secondary school staff can help identify the opportunities to develop physically active cultures within schools; can provide insight into policy development and engagement with policy; and most importantly, can work to contribute towards improving the outcomes for young people. Exploring the functionings and capabilities of staff members within secondary schools is purposeful in gaining a deeper understanding of the school context in relation to adolescents being physically active.

Methods

This research takes the capabilities approach to the assessment of school-, environmental-, and personal-level factors of staff. An online questionnaire was designed that included qualitative and qualitative data collection methods and sent to staff from Bay of Plenty-based secondary schools. Staff were asked to both rate and reflect on their ability to acquire and draw on physical activity-related information, knowledge, opportunities and skills that enable and/or enhance a student's physical activity level, and to consider what limitations may be present.

Methodological Theory

The epistemological framework underlying this research methodology is critical realism, used in health promotion research previously, this approach is useful to reflect on one's experience as a framework to explore factors surrounding staff enabling students to be physically active while at school (Fletcher, 2017). That is to understand causal mechanisms associated with staff enabling student's activity. Critical realist research looks to get as close to an observable reality as possible, while recognising that both the study and the study participants are interpreting/interpretative beings (Connelly, 2001). The current research will add methodological contribution to research by seeking sense making from individuals and thus has the potential to identify causal mechanisms. Utilising the personal knowledge and experience of secondary school staff and in relation to the national guidelines of physical activity to capture and critically explore alternative ways to understand and think about the physical activity levels of rangatahi/young people within their secondary school context.

Research adopting a critical realist epistemological framework, underpinned by capabilities approach, can provide a deeper understanding of phenomena. A relevant example of, Ruger's (2010) conceptual model of health capability was also considered insightful for a more nuanced approach to the impact of social structures on an individual's functioning and agency. Within a critical realist framework these factors are treated as real elements and are interpreted by the respondents as having the potential to act as causal mechanisms. Ruger (2010) stated a person's capabilities for health enhancing behaviour can be assumed to be based on a set of capitals or resources that are 'translated' into capabilities. Within a critical realist framework, explanations can focus on the capabilities or entities that can generate events – as well as the properties of entities that empower them. In turn, the potential of how conversion factors across the levels are

interpreted by respondents can be explored alongside the more general factors enhancing or inhibiting the capability of staff to enable students to be active.

Survey Design

Operationalising capabilities approach comes with its challenges, especially as this approach to exploring health-related behaviours is relatively scarce. Of the current relevant research using capabilities approach, the scope is somewhat diverse. Some quantitative tools look to measure overall capabilities to pursue one's goals, satisfaction with one's own life, enjoying one's life, bodily health and integrity, and health enhancing factors, but no one measure assesses a person's overall capabilities for health or wellbeing. Few qualitative tools are available, and those that do focus on general capabilities for health, self-management diabetes patients and capabilities for physical activity as a health-promoting factor (Ndomoto et al. 2018, Sauter et al., 2019). Among the tools, the Capability Assessment for Diet and Activity (CADA) does explore resources, environmental, social and individual factors of influence. Sauter et al.'s qualitative study mentioned previously in the literature review, helped to guide this current research. The usefulness of addressing capabilities for physical activity by way of interview-based approaches is recognised and thus in-depth responses were sought through qualitative data. Rather than a tool to directly measure capabilities, respondents were invited to describe the layered nature of their reality by specifically exploring factors such as knowledge about activity and social factors such as support as well as environmental factors that influence the opportunities for physical activity.

In this context, and with limited research examples available specific to the topic at hand, it was therefore essential to design my own data collecting tools. The mixed methods approach was employed to explore a wide range of perspectives and make space beyond singular research methods (Creswell, Klassen, Plano Clark & Smith, 2011; Sauter et al., 2018). Known for a more comprehensive process, mixed methods provide a process to dive into what participants think and experience, having potential to capture more subjective explanations (Ritchie & Lewis, 2010). While the qualitative design allows for in-depth descriptions to gain deeper understanding through participant voice, the quantitative data provides supporting and enriched variables to measure and analyse statistically (Creswell, Klassen, Plano Clark & Smith, 2011).

A mixed-methods approach using survey research was selected to explore school staff's value and capabilities in relation to enabling physical activity at secondary school. These methods aim to answer questions about the 'what is happening in schools', 'how is enabling physical activity supported' or 'why do staff enable students to be active' through the qualitative methods, while at the same time, a form of 'how much capability exists' is provided by quantitative methods (Braun & Clarke, 2013; 2014; McCusker & Gunaydin, 2015). Gathering a deep understanding through survey responses also provides a basis for assessing patterns of responses. Both quantitative and qualitative data sought through an online survey is useful in gaining understandings to capture, compare and interpret a variation of responses, and to explore any contradictions between these (Braun & Clarke, 2013; 2014). Braun, Clarke, Boulton, Davey and McEvoy (2021) argue the online survey is a useful research tool, flexible and has advantages for both researchers and for participants. A mixed-methods approach is chosen to expand and strengthen my study's conclusions using quantitative results and qualitative findings.

Within the survey, quantitative data was gained through questions using an ordered rating scale (Likert scale) and asked participants to choose one option that best aligns with their view. The Likert scale used in the current research was categorical by nature as the ratings themselves did not reflect a true measure, rather ratings reflected statements and were framed as 1 = Strongly Disagree, 2 = Disagree, 3 = Neither agree nor disagree, 4 = Agree, 5 = Strongly Agree. A five-point scale was chosen because they use a universal method of collecting data made up of limited choices to avoid respondents being overwhelmed, allowing for degrees of opinion and to be neutral should they so choose. As Allen and Seaman (2007) pointed out, a scaled measure has the advantage that they do not expect a simple yes / no answer from the respondent and therefore quantitative data is obtained, which means that the data can be analysed with relative ease. This data is useful for comparing groups of responses to form sets of data, exploring who said what, and provided data to explore whether the qualitative and quantitative data sets are congruent (or not) (Allen & Seaman, 2007).

While developing survey questions for the current research, the aforementioned literature was used to help guide the process, while focusing on context-specific personal, social, organisational and environmental factors involved in school staff's real opportunities to value and realise their capability to enable students to be active. A key consideration while developing the

survey questions was to shift away from focusing solely on student's individual behaviour or motivations to be active, and instead move toward other people, spaces and structures that influence and interact with student's physical activity levels. For this research, three main strands (environmental, organisational with personal) were developed to capture a wide lens of relevant factors that may interact with staff when enabling students to be active at school while also representing the supporting literature. Within these strands, key concepts within both the capability and ecological literature were included, for example, opportunities, value, support and knowledge and skills to actualise opportunities were discussed previously and thus included in the personal and school as an organisation strand. For example, asking about the opportunities currently provided to staff that help to enable students to be more active afforded the space to not only capture but to also organise complexities that may exist (see Appendix A for survey questions).

In alignment with the capabilities approach, this survey used enablers and limitations to frame aspects in relation to conversion factors, that is, what helps a person achieve certain functionings. Questions were framed as what helps staff to enable students to be active and what works to limit them. Environmental factors discussed in research include the physical space, access to this space and what things are in this space, thus to allow for all of these to be drawn on, this strand was framed as the 'school's physical environment and resources' (Dagkas & Stathi, 2007). Organisational factors across research are vast and include considerations around an organisation's size, life cycle, strategy, environment, and technology. When considering the school site as a functional organisation, this looks to leadership, structure and norms as more relevant aspects to include (Thaker et. al., 2008). For this research, it was important to capture the school itself as an organisation and consider what directly shapes and impacts on staff. Of the limited relevant research around positive lifestyle behaviours in relation to personal factors, I also looked to Nussbaum's list mentioned previously, specifically: imagination and thought; emotions; practical reason; affiliation; play; and control over one's environment (Anand, 2005). To simplify this concept, the survey questions were underpinned by autonomy, a person's relevant knowledge/skills, motivation/value and the opportunities a person has. Within this strand, it was important to allow respondents to consider themselves as individuals and as individuals in relation to their organisation or environment.

This project's qualitative survey consists of a series of open-ended questions that are self-administered and with questions presented in a standard order to all participants. Instead of selecting from predetermined responses, participants were asked to type responses in their own words, across a range of open-ended questions about their experiences. Open-ended survey questions were utilised to gain insight beyond the quantitative information and to also provide a richer understanding. The advantage of capturing staff's language and terminology centered on the topic at hand is a priority in order to respect the 'within group' voice of the respondents (Firth, 2000; Wilkinson & Kitzinger, 1996). In addition, open ended questions are necessary to my research question, that is to understand staff's interpretation of how their capabilities are enabled or constrained. Due to the limited study found on this topic, this research will add a methodological contribution to research seeking interpretative sense making from individuals in a particular setting, which aligns with the critical realist approach.

An online qual-quant survey was chosen for a number of key reasons. Moving to an online, rather than face to face, increased the likelihood of participating and the response quality given the time and access restrictions of not only school staff, but also of schools during a global pandemic. The worldwide pandemic situation (COVID-19) forced the considerations of access, time and effort that would be required of staff to participate. In addition, given the current situation and level of uncertainty surrounding open access to people during a pandemic, considering an appropriate method of carrying out research was at the forefront of decision making. Whilst a global pandemic exists, gaining insights from a larger group in a more accessible way is advantageous when interview/in-person access is constrained by COVID-based restrictions. Selecting an online qual-quant survey for its strength of access is twofold; easy access to large geographically dispersed populations as well as allowing respondents to participate at a location of their choice, with access and suitability across different types of mobile devices and screens, allowing for participation to occur outside of the school site in which we are exploring (Braun & Clarke, 2013; 2014; Braun, Clarke, Boulton, Davey & McEvoy, 2021); Toerien & Wilkinson, 2004).

An online survey was also chosen for the ability to capture an array of subjective perspectives, experiences and/or sense-making, specifically, a perspective of capability factors surrounding staff's enabling of student's physical activity while in school (Braun & Clarke, 2013;

2014; Braun et al., 202; Toerien & Wilkinson, 2004). The survey questions looked to explore the capability of school staff in relation to enhancing a physically active school culture and with the achieved functioning of staff enabling students to be active while at school. At the beginning of the survey, a definition of physical activity was provided using both the Ministry of Health's and World Health Organisation's physical activity guidelines to help inform and define factors to consider when asking staff about students being active at school. The reason for providing such a definition is twofold, first, to bring attention to the details of New Zealand's national guidelines to investigate the implementation of this policy and to ensure survey respondents had a shared definition of physical activity to work from. The following statement was used:

> 'Physical activity OUTSIDE of what is delivered through the Health and Physical Education curriculum. That is any bodily movement produced by skeletal muscles that requires energy expenditure (WHO, 2021). This includes: All movement including during leisure time, to get to and from places, or as part of a person's school/work, structured or organised sport, active recreation and play; All can be done at any level of skill or intensity, and for enjoyment; For adolescents, limiting the amount of time spent being sedentary is also relevant when considering physical activity levels.

Participants

As Braun et al. (2021) explains, the value of giving voice to those who may be otherwise limited in time and access to participation was a key consideration, thus an online survey was one way to show respect to the intended participants and their anonymity. Using relevant population and regional information sources, such as New Zealand's official data agency, ministerial websites, national and regional websites and profile reports (e.g., Bay of Plenty Regional Council, 2018); Stats NZ and Te Ara - the Encyclopedia of New Zealand), opportunistic sampling within the Bay of Plenty (BOP) region was selected due to the region's characteristics. At the 2001 census, BOP was the fifth most populated region and projected to continually grow, it is densely populated with considerable variation in ethnic composition across districts. With a higher proportion of Māori (25%) in comparison to the national average (14%) and the most deprived sections are over-represented, with a relatively low proportion of people in the least deprived section of the population. While the age structure of Māori is markedly younger than for NZ

European in the region, more than half the Māori population was under 25 years of age in 2001. BOP represents the north-facing coastline on the east coast of the central North Island of New Zealand, and is known as Te Moana a Toi (the sea of Toi) or Toitetuatahi, with Pākehā later naming it the 'Bay of Plenty'.

The region encompasses seven local government districts – Western Bay of Plenty, Tauranga, Whakatāne, Kawerau, Ōpōtiki, Rotorua and Taupō. When considering the region's physical boundaries and population, the section of the Taupō District that falls within BOP has no urban areas and less than 1% of the region's total population, thus Taupō was excluded from the current study. The Western BOP District is the region's northern-most district, encompassing an area from the Ohinemuri River watershed to the Whakatāne District boundary, between the Kaimai Ranges and by the east of the Pacific Ocean. The Tauranga District has 38% of the population of the BOP overall and the lowest proportion of Māori in the region (16%). The Whakatāne District has a central location and covers inland and the coast from Otamarakau in the west to Ohiwa Harbour in the east. The Kawerau District is situated at the foot of Putauaki (Mount Edgecumbe), made up of the youngest average age (26 years) and with the highest proportion of Māori (56%) in the region. The Ōpōtiki District extends along the eastern coastline and despite the lowest population density in the region, has the second highest proportion of Māori of all BOP districts (54%). One of the larger urban centres in New Zealand, the Rotorua District lies partly within the BOP Region and the Waikato Region, the area that lies within the BOP has a population that equates to 25% of the region's population.

Individuals employed at a secondary school within the BOP region set the criteria for this study. Individual participant demographic information (such as age, gender, ethnicity) was not sought out in this research project thus is unknown. The participants can be described by their job title/role, location of the school at which they work and the school's decile rating. A main driver for narrowing down on participant characteristics was to uphold anonymity and to ensure responses could not be identified on an individual basis nor to which school they belong. In order to group the jobs/roles into meaningful categorisation for this study, I looked across a number of school websites as to the pattern of roles present. The final selection of roles was then checked by key contacts working in secondary schools and at the Ministry of Education, to ensure the list captured what staff can be currently found working in the secondary school space and to ensure

groups of people were not excluded in identifying their role. The final amalgamated list of roles used in this research are as follows: Teaching Staff, Teacher/Learner Support; Senior/Executive Leadership Team; Head of Faculty/ Department, Dean, Other leadership roles; Administration, Non-Teaching Support Staff; and Student wellbeing/ Counsellor/ Pastoral Care. The groupings of roles looked to capture the diverse range of personnel present within schools and to consider differences that are present in relation to their responsibilities related to physical activity. Further details on the respondents are provided in the results section.

Data Collection Procedure

Upon receiving ethics approval (Appendix B), I worked with the schools to determine how to best share information about this project to staff. Given the current pandemic situation and the level of unknown surrounding lockdown and COVID-19 restrictions, reducing in-person contact was key. Thus, only email contact was made with schools and staff, no direct contact occurred.

To recruit participants, using the school administration contacts found on the Education Counts website, all secondary schools across the BOP area were contacted by email and informed about this research. Staff employed at a secondary school within the BOP region set the criteria and participants were recruited through secondary school administration and other spaces populated school-based groups, such as key contacts, He Kahui Ako, Sport Bay of Plenty and the Community of Learners, to increase the chance of accessing people who work in schools, and beyond teaching staff alone. For this research, 42 schools were contacted (according to the Districts: Western BOP 3, Tauranga 11, Rotorua 12, Whakatāne 10, Kawerau 3, Opotiki 3 and excluding the Taupō district). All of which includes special schools, secondary schools and teen parent units' years 9-15, while also being characterised as state (38), integrated (3) and private schools (1) by the Ministry of Education. The Education Counts website categorised school's rurality according as per Statistics NZ Urban Area's definition and of those included in the recruitment process, there were 8 rural, 22 main urban, 9 minor urban and 3 secondary urban. Due to the complexities surrounding the idea of a school's location, for this study, participants were asked to categorise their school as either urban (34) or rural (8). Of the schools included in the recruitment process, a total of 26 schools were low decile (decile 1-3), 13 were medium decile (deciles 4-7) and 3 were high decile (deciles 8-10).

The study's 'Information Sheet' (see Appendix D) was then emailed out to all schools requesting permission to conduct research and encouraging as many individual responses as possible to capture useful insights and to better understand physical activity in schools. Further research information then followed via email and was addressed to staff (see Appendix E), which included the access link for the online survey with participation details and guidelines. Emphasis was placed on the fact that the survey was accessible on any device with internet access and encouraged respondents to participate at a time and place that was suitable to them. Reminder emails and prompts to participate were sent out to schools every two to three weeks and this research was also promoted through school-based contacts aforementioned. The survey was left open for almost three months to allow for the school holiday break and with the hope of alleviating pressure to participate within school time due to the impact of COVID-19 and lockdowns. To ensure this research provides a positive contribution and to value those that participated, all schools will be provided with an executive summary of findings at the end of the research period and will be sent to all schools due to participation being anonymous.

Data Analysis Procedure

Analysis started with the data captured from the quantitative Likert scale questions and categorical data that resulted. Using descriptive statistics, the mean, mode and medians were established across five categories (personal and school-based categories: environmental, organisational, social described as 'school's support of staff', and overall school). Then comparisons were made between relevant groupings of data, for example, school location (urban/rural) and deciles (low, medium, high). Total ratings were also explored in order to briefly summarise any patterns in responses received.

Inferential statistics were used to determine whether the patterns in data were associated to the school's decile rating and/or location, specifically, t-tests and chi square were used to compare data and to determine whether the responses were influenced by location or decile. The Chi-square statistic is a non-parametric tool designed to analyse group differences, chosen because the Chi-square is robust and does not require equality of variances among groups, providing useful information and details about the groups and to better understand the results (McHugh, 2013; Preacher, 2001). The chi-square tests of independence were used to determine if there were differences between observed data and whether capability rating differences were a result of

location or decile ratings effects. The calculated degrees of freedom are four, the maximum number of logically independent values, which are values that have the freedom to vary, in the data sample. However, due to its ability to deal with data that is not normally distributed, using a t-test was also considered. According to Goulden (1956) a t-test is robust and useful to show that there is no significant difference in your categories, using a between t-test to determine whether the means of two groups are equal to each other. The t-test assumes the data are independent, normally distributed and have a similar amount of variance within the groups. Using the critical value chart to compare whether the calculated *t*-value is greater than what would be expected by chance can lead to rejecting the null hypothesis and conclude that the two groups are in fact different. The t-score reflects the ratio between the difference between two groups and the difference within the groups, larger t-scores reflect a greater difference and smaller t-scores reflect the similarity between groups. This process was applied to create inferential statistics of the study and to critically evaluate differences in the data and assess the effects of decile or location variables.

Qualitative data was then analysed by using thematic analysis to search for patterns of meaning present within findings. Themes were used to organise and describe data in a way to best reflect the similarities and differences found in the responses from those individuals in positions of influence within New Zealand secondary schools (Braun & Clarke 2012; Castro, Kellison, Boyd & Kopak, 2010). First, deductive thematic analysis was applied to the qualitative data, that is grouping the individual responses according to the theory-based themes, reflecting on how these themes were explained or discussed by respondents. This was selected for the treatment and initial organising of data using the theory-based themes, imposing the key tenets of both the capability and ecological theories. Any central conceptions in each response were identified and then organised within school-based and personal-capability strands, reflecting the structure of the survey. These themes and responses were then reviewed from both the capabilities approach and ecological theory to consider how respondents were experiencing their environment, for example what was in the environment that was enabling or limiting them (Maguire & Delahunt, 2017).

Then, in order to further explore and organise the responses, an inductive second phase of analysis was conducted to ensure the deductive process did not exclude any other central conceptions as described by respondents (Fereday & Muir-Cochrane, 2006). This was important to facilitate the identification and analysis of patterns or themes that may be excluded from a

theory-based approach alone (Braun & Clarke 2012; Sullivan, Gibson & Riley, 2012). To do this, the responses were reviewed on the basis of their content being within/outside of the overarching theme and were then grouped into sub-categories, which contained responses of similar content. During this process, 'Relationships and Support' and 'Value' emerged as additional, stand-alone themes. Again, responses were reviewed within these five themes and additional sub-themes emerged, then reviewed to prevent doubling up of patterns and/or themes. This process formed how the data was described in relation to the research questions (Ahlborg & Strandmark, 2006). The analysis process contributed to the validity of this study and for this reason the results were continuously questioned and re-checked. The identification of themes was also checked by the researcher's supervisor and following discussions, either consensus was reached or categories, themes and their contents were redefined.

In sum, a process of adopting both inductive and deductive thematic analysis to interpret the raw data was utilised, while also looking to be reflexive in the approach to thematic analysis. Using theory driven themes as well as themes derived from the data itself was adopted because this approach leans on the research questions which were grounded in theory, while also allowing for themes to be developed and creating understanding of how these forms of capabilities were experienced by the survey respondents. This encouraged a rigorous approach to all stages of analysis, from organising the responses to reflecting on themes in development and producing the final conceptual themes of the analysis. Reflexivity was used to develop the analysis and for further meaning-making of the staff's perspectives (Yardley, 2015).

Ethical Considerations

Ethical consideration was given to the complexities that surround the topic at hand with value found in giving voice to those who may be otherwise limited in time and access (school sites and staff working with adolescence); thus, an online survey was selected with regard given to respecting the intended participants, their schools and their anonymity (Braun et al., 2020). To ensure anonymity, staff were only asked to share their school's decile rating (low/medium/high), location (urban/rural) and role (selecting from an amalgamated list). Respect for peoples and persons is especially relevant for this study due to engaging with individuals at a unique and potentially vulnerable time in school staff's lives (NZ Code of Ethics, 2012). The purpose of this study, process of data collection and analyses of responses were explained to all participants within

the aforementioned information sheets provided to schools and potential participants. A statement of consent was one of the first sections within the online survey and participants were unable to continue onto the survey unless consent was obtained (see Ethics section in Appendices). Data was collected via an online link, thus allowing the participant to select their location to complete the online survey. The practical features of online qualitative surveys that offer advantages to participants and researchers. For example, not requiring direct contact with participants worked to minimise the risk to personal safety and also supported key ethical aspects of access and anonymity. All individuals were reminded of their rights to conclude participating at any time during the survey, to limit their survey responses and/or to not submit their survey responses at the end. Due to responses being collected anonymously, withdrawing was not possible after submitting the survey, therefore, confidentiality was prioritised, respect given to a person's ability to make decisions in light of their own beliefs and values. The risk was considered low given the topic of study and the ability to skip the question and/or opt out at any time during the survey was assured. Confidentiality and privacy were assured by way of allocating a number to the responses received as well as responses coded according to location and decile rating, ensuring anonymity. The completed responses were uploaded directly to a password protected online account of the researcher and stored on an external hard drive. An executive summary of this research will also be provided to all schools in the Bay of Plenty region as a way of feeding back the research findings and to provide participants to review what knowledge was generated. The Massey University ethics research committee’s approval of this research as a low-risk project helped to assert that this project was conducted in a responsible and ethical manner (see Appendices B & C).

Results and Analysis

This research leans on the concept of capability that requires the assessment of personal- and school-based (social, organisational and environmental) factors, to consider situations or conditions that enable or limit staff's capability to enable students to be active while at school. Respondents were asked to reflect on their ability to acquire and draw on physical activity-related information, knowledge, opportunities, resources and skills that help them to increase student's physical activity levels, and to consider what limitations may be present. For Ruger (2010), a person's capabilities for health enhancing behaviour can be assumed to be based on a set of capitals or resources that are 'translated' into capabilities, and through this data, we look to explore potential conversion factors across personal and school-based levels. Through the analyses of findings, a capability profile worked to highlight functioning, agency, and more general factors enhancing or inhibiting the capability of staff to enable students to be active.

Respondents

While twenty-seven responses were received, some responses did not complete the full survey, for example, one respondent only identified their location with none of the rating scales completed, and thus where appropriate, was excluded from the quantitative summary of findings (and number of responses stipulated). For the purposes of organising, analysing and then using data to discuss the findings, responses were allocated a number chronologically when submitted, then tagged with decile rating and location, for example, response 20 is from a medium decile school, of urban locality and written up as "20 DM U" (see the Index for an overview of participant's information and the associated documents for full raw data).

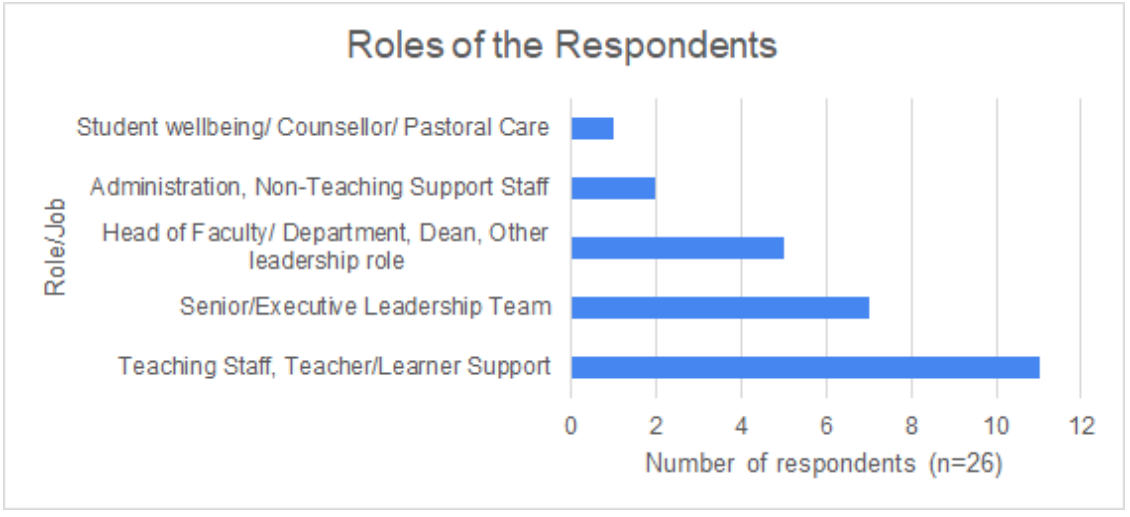
Figure 2 & 3

Distribution of Responses by Location (left) and by Decile Rating (right)

Note: These figures capture the spread of responses according to location (left) and by decile rating (right).

Figure 4

Roles of the Respondents



Note: This figure illustrates the distribution of job/role selections made by respondents (n = 26).

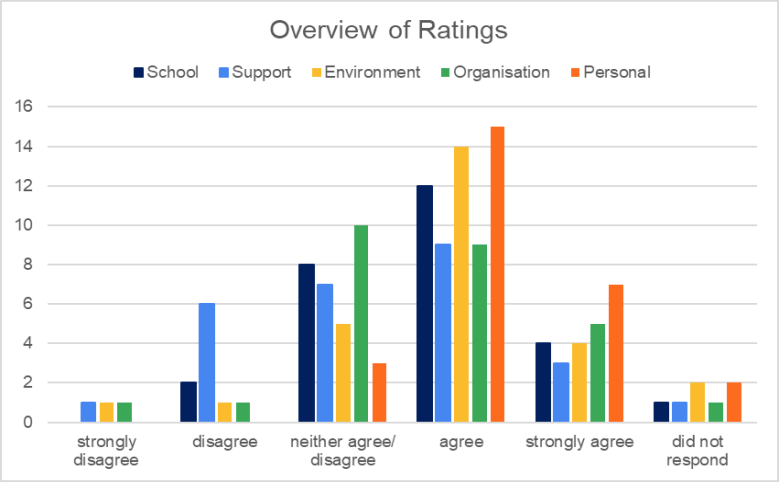
Of the 42 schools contacted, Figure 3 shows the distribution of responses according to school's decile rating. Overall, six respondents were received from the 26 low decile schools, 19 responses came from the 13 medium decile schools and one from the three high decile schools. Of the 34 urban and 8 rural schools invited to participate, five respondents identified their location as rural and 21 urban, (and one did not identify their school's location), as shown in Figure 2. Given the characteristics of all the schools included in the recruitment process, the representativeness of locality is fairly represented by the responses received; however, regarding the decile ratings, there is an underrepresentation of low decile schools and overrepresentation of medium decile schools (26 low decile schools, 13 medium decile and 3 high decile schools were invited to participate). Looking at the 26 respondents' role/job (selected from the amalgamated list) and as shown in Figure 4, almost half (n = 11) were from teacher/classroom-based roles or from a leadership role (n=12). Only one respondent upheld a role relating to student wellbeing (pastoral care/counsellor), two from an administrative/non-teaching support role; one respondent did not select an option.

Descriptive Quantitative Data

When looking at total scores across all rating categories, 128 total ratings were received across the five categories (personal, environment, organisation including support of staff and school overall), 7 selections were not completed (see Figure 5). The average total score is 18.19 out of possible 25, the median score 19, with the total sum of scores ranging from 10 - 25. Across all of the rating categories, 23 'strongly agree' and 59 'agree' scores asserts staff experienced some form of capability to enable students to be active while at school. Of the remaining ratings, 33 'neither agree nor disagree', 10 'disagree' and three 'strongly disagree' to acknowledging there was capability present. Overall, this suggests a more positive experience of capabilities existed for most respondents and with approximately 10% of responses were negative, it suggests that only a minority experienced limited capabilities across the five rating categories.

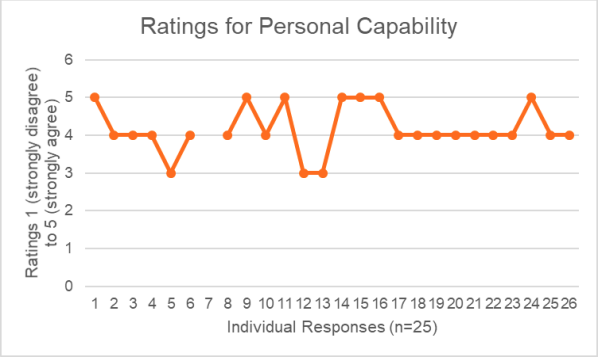
Figure 5

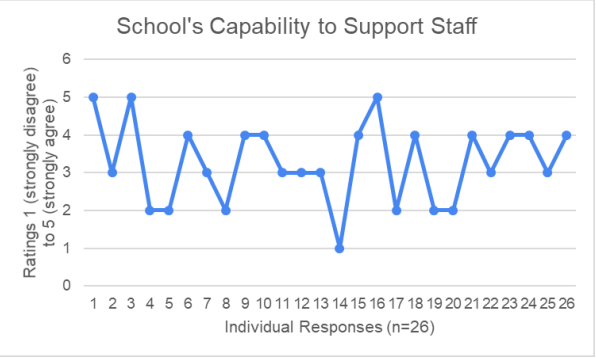
Distribution of Ratings Across All Categories

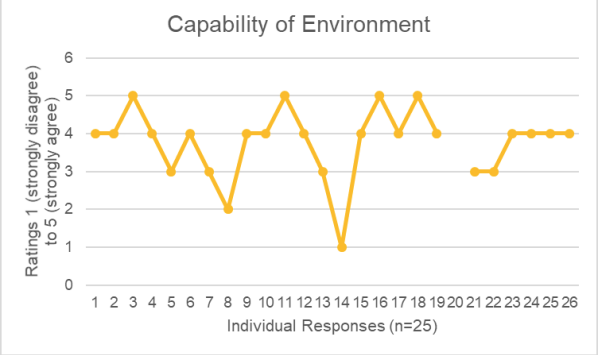


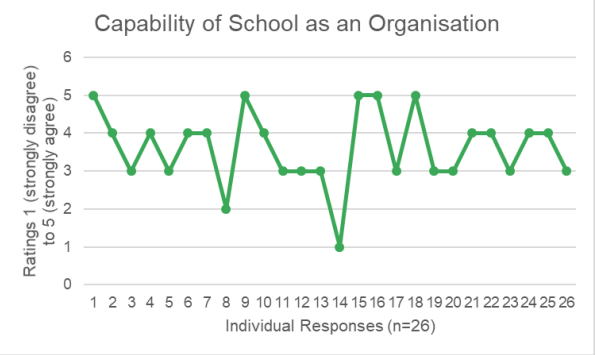
Figures 6-9

Overview of Ratings per Strand (Four of the Five Categories)







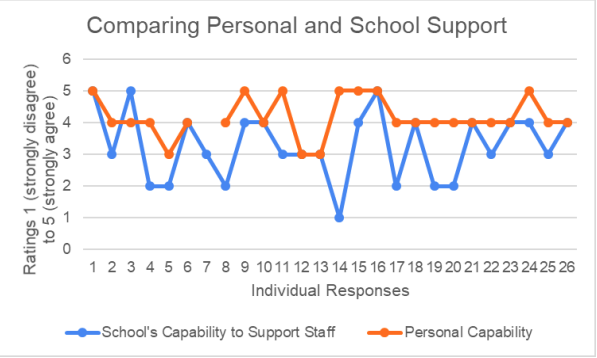


Of the five rating categories, personal capability (Figure 6) was perceived as the strongest, with a total of 22 selections made for 'agree' or 'strongly agree' when asked 'I am capable when thinking about how I enable students to be physically active while at school'. Higher perceptions of capability were also found within the environment (n=18), which is similar to the other school-based categories- school's capability overall (n=16 agree), the school as an organisation (n = 14) and for school's capability to support staff to enable students to be active (n = 12). For the 25 ratings of the 'environmental capability' category (Figure 8), the total sum was 94 out of a possible 125 and ratings range from 1-5, the average rating is 3.27, with a mode and mean of four. There were 26 rating responses received for 'my school as an organisation reflects capabilities to support staff to enable students to be active' (Figure 9). Again, a total of 94 out of a possible 125 with an average rating of 3.68 (using the 1-5 rating scale), also with a mode and mean of four, showing relative similar ratings to environmental capability, other than two outliers. Overall, the school's capability to support staff (Figure 7) was perceived as lacking with a total of seven of the 26 respondents selecting disagree or strongly disagree when asked "my school is capable in the way they support staff to enable students to be physically active while at school". This category also had the biggest difference between the ratings. While the mean scores of respondents' ratings did not show a large variance, it was worthwhile to consider these means by looking at the full data set against decile ratings and against location.

To illustrate the differences between particular rating categories, Figures 10 and 11 depict the 14 respondents who experienced their school's capability to support staff to enable students to be active at school as less capable compared to ratings of their personal capability. For eight respondents, their school's capability (overall) was also rated as deficient or more limiting compared with the more positive personal capability category. However, to exemplify the shared patterns found in ratings Figures 12 and 13 reinforce the idea that respondents perceived a congruence between both their environment and their school as supporting staff to enable students to be active. As expected, ratings were also found to be similar when comparing the schools' overall capability against schools as an organisation. The take home point is that there were discrepancies in ratings of school versus personal capability, and for some staff this was very large, suggesting they were experiencing the school as limiting their capability to enable students to be active.

Figures 10 & 11

Comparing Categories for Differences in Ratings - Personal Capability and School Support Ratings (left); Personal Capability and School Overall (right)



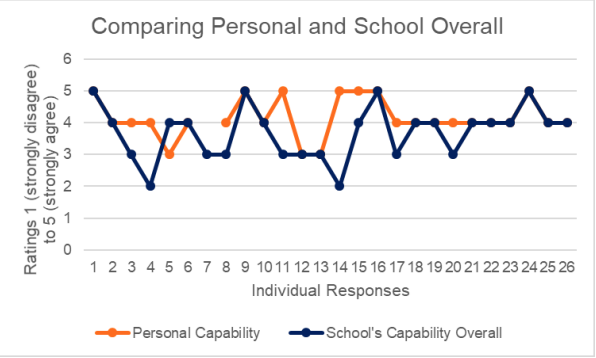
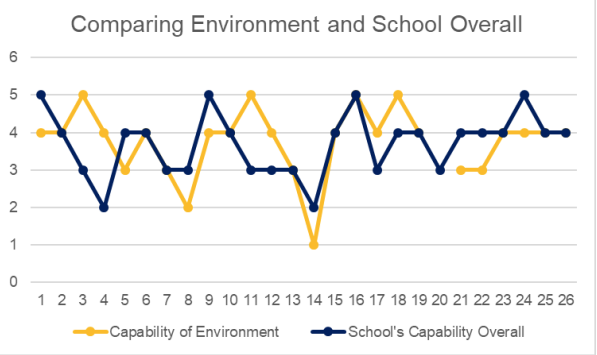


Figure 12 & 13

Comparing Categories for Similarities - Environment Ratings and School Overall (left); School Overall and School as an Organisation (right)



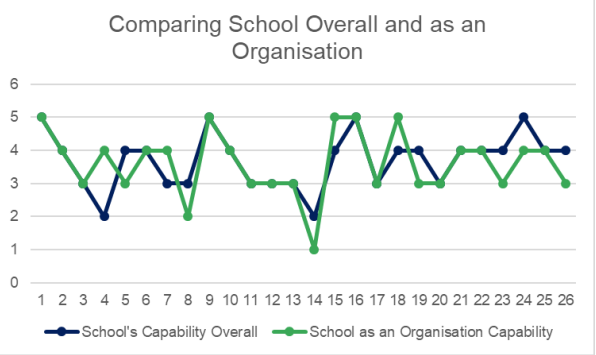


Figure 14

Comparing the Differences in Means for School Support

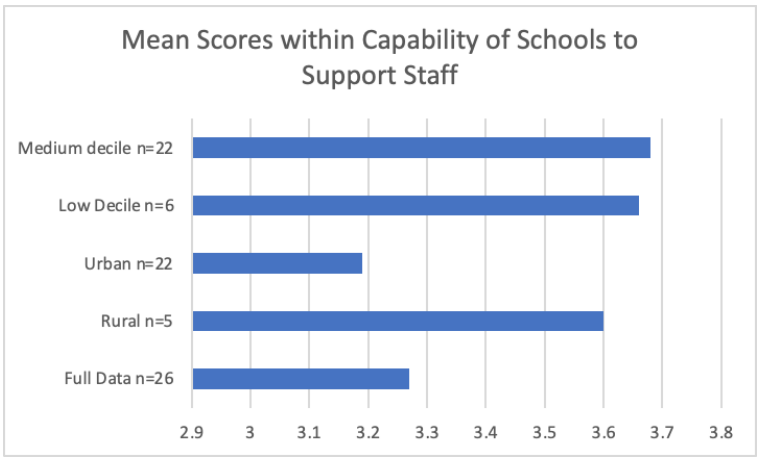


Figure 15

Comparing the Means by Location (rural/urban) Across the Five Rating Categories (left).

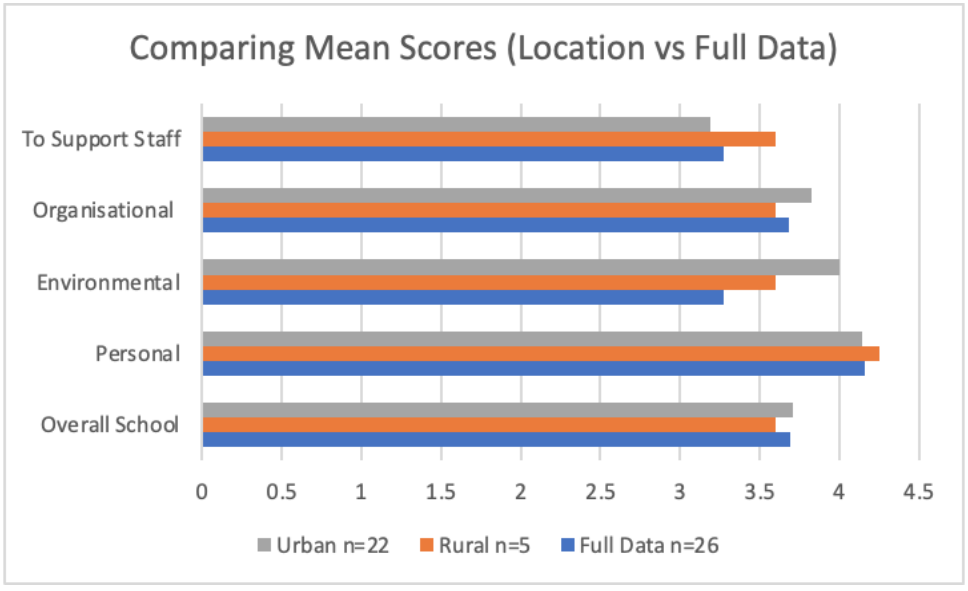
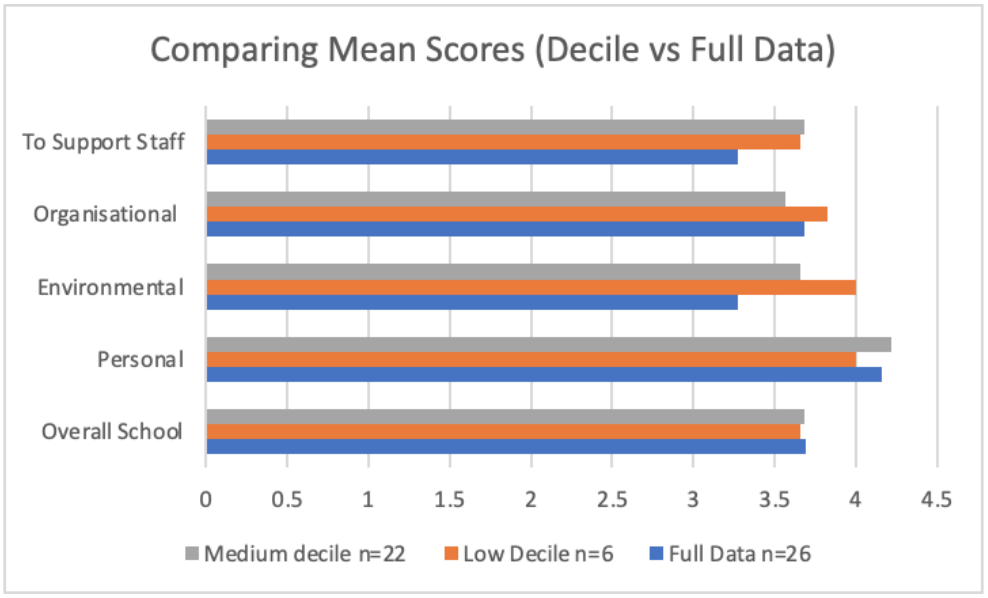


Figure 16

Comparing the Means by Decile (low/medium) Across the Five Rating Categories (right)



While differences in perceived capability were evident when comparing ratings across the categories, patterns were also found in the distribution of responses when bringing to the forefront decile and location variables. Compared to the full data set, the mean scores across the categories point to the idea that respondents from rural and medium decile schools were experiencing greater support from their schools and generally, staff experienced higher personal capability. Whereas on average, those from urban areas and those from low decile schools perceived higher capabilities across the categories of the school as an organisation and the school's environment, compared to medium decile, rural schools and compared to the data set as a whole.

In response to the distribution of ratings presented previously, three key questions were explored through chi squares tests of independence: Are rural staff significantly different in support staff scores, compared to the urban? Are urban environment scores different compared to rural? Are low decile environment scores different compared to medium decile schools? The null hypothesis is that capability ratings are not associated with location or decile variables, the

alternative hypotheses were that decile and/or location effects capability. Here, the significance level of 0.05 indicates a 5% risk of concluding that an association between the variables exists when there is no actual association. Therefore, when considering the capability of schools to support staff, we failed to reject our null hypothesis that a school's location (urban, rural) was associated with experiences of support capability (Chi square 7.14, df4, p value 0.12, Yates's chi square 3.67, yates p value 0.45), noting that p values more than 0.05 means it is not statistically significant. Furthermore, the distinctions between rural and urban schools experiencing support from their schools, may be due to chance as the test did not result in significant results. When considering a school's environmental capability, we also failed to reject our null hypothesis that a school's decile (low, medium: Chi square 0.96, df4, p value 0.91, Yates's chi square 1.09, yates p value 0.89) and location (urban, rural: Chi square 4.59, df4, p value 0.33, Yates's chi square 1.61, yates p value 0.80) were associated with higher environmental capability. The rural/urban and decile distinctions did not lead to significantly different responses, thus for this sample, we assume that the deviations in ratings may be due to mere chance.

The t-test was then used to consider whether there was a significant difference in staff's total capability based on their school's decile (low versus medium) or location (rural versus urban) and whether there were significant differences in personal capability between urban and rural staff. Across all rating categories, the total capability ratings for the five low decile respondents (*Mean* = 19; *SD* = 10.4) were compared to the 19 medium decile respondents' total capability (*Mean* = 17.89; *SD* = 16.54), and there was no significant effect found for decile rating (t (23) = 0.60; p = .27). Across all rating categories, the total capability ratings of the five rural respondents (*Mean* = 17.8; *SD* = 22.7) were compared to the 21 urban respondents' total capability (*Mean* = 18.29; *SD* = 13.21), and there was no significant effect for location (t (24) = -.25; p = .40). The ratings of personal capability for the same five rural respondents (*Mean* = 3.4; *SD* = 3.8) were also compared to the 21 urban (*Mean* = 4.14; *SD* = 0.43), and again, no significant effect was found for location on personal capability (t (24) = -1.5; p = .07).

Overall, the survey showed a pattern of respondents generally scoring average or above across the personal, environment, organisation and support of staff rating categories, with little variation (notably two respondents who were particularly dissatisfied). When looking across the categories with the least number of negative responses, there was generally a stronger sense of personal capability, of perceived capability of the school overall and sense of perceived capability

in the environment to support staff to enable students to be active. There were no significant differences found between responses that came from rural or urban schools, or between schools that had low or medium decile categories.

Qualitative Data

Both the ecologic theory and capabilities approach provided the framework used to analyse and organise survey responses, and also to identify factors that may directly and/or indirectly impact on staff. Alongside the quantitative scores provided across the aforementioned categories (personal, environment, school's support of staff, school as an organisation, and school overall), the respondents were invited to explain their responses and provide qualitative data. The survey asked respondents to explain their experience of: personal capabilities (including the role of their abilities, knowledge, skill and potential in relation to their capability); school's capability to support staff to enable students to be active at school; factors relating to the school as an organisation (including the role of opportunities, resourcing, workload and structure); and of their school's environment in relation to staff's capability to enable activity. Additionally, the respondents were asked to explain how value for enabling students to be active is experienced.

Table 1

Main Qualitative Themes

Strands	Key Themes
Personal	Knowledge, abilities, skills
	Confidence to activate resources/knowledge
Value	Outcome-based motivators
	Physical activity as part of a holistic educational experience
	Individual development and improves health and wellbeing
School	
Environmental	Physical surroundings
	Sufficient provision of and access to facilities and sports equipment
	Student experience is a key consideration
Organisational	Types of opportunities
	Within structured learning blocks
	Outside of structured learning blocks
	Staff's individual pursuits
	Resourcing
	Structure
	Workload
Social	Collaborative environments including support
	Student-staff relationship

Note: The table provides an overview of the key themes featured in the qualitative data that will now be discussed in detail.

Personal Capabilities

When asked about personal capabilities, the respondent's understanding about what personal factors limited or helped them to enable students to be physically active was centered around their abilities, knowledge and/or skills as well as their confidence to call upon these elements. Respondents brought forward a number of components deemed necessary to enable activity; "own sporting career drives encouragement" (3DL R); "training as a PE teacher helped … understanding key concepts, skill progressions and how to utilise resources" (7 DM U); "past sporting experience. Local connections and national involvement" (20 DM U); and "knowledge … and being comfortable in delivering knowledge" (19 DM U). These worked to reinforce the importance of utilising skills, knowledge and resources as well as capitalising on own sporting endeavours in relation to capability to enable the activity of students. Responses highlighted the role of confidence when delivering physical activity, "knowledge of the human body and being comfortable in delivering knowledge around the benefits of exercise" (19 DM U) and "having the confidence to set routines" (4 DL U). This positions the confidence to apply knowledge, skills and resources as an additional element of staff capabilities.

Responses also made mention of staff's abilities, knowledge and/or skills in relation to students who are not active nor motivated to be active, "limited knowledge and understanding of how to motivate students who are not interested in any kind of activity" (2 DL U); "we should be finding out what those who aren't active want to do and catering to them too" (4 DL U); and "not being empathetic enough with the multitude of students who require a different approach" (25 DM U). Student participation was a key aspect in affirming realised potential for respondents, with a tension found in trying to cater to varied student motivation, "some students have a negative attitude to physical activity and it can take the joy away from it" (13 DMU).

Overall, the way in which personal factors contributed to enabling student's engagement in physical activity was described as abilities, knowledge and/or skills of staff alongside the confidence to activate these elements. Further, a positive relationship with students was perceived as advantageous for enabling student's engagement in physical activity.

Value in Enabling Physical Activity

Respondents were also asked to comment on whether it was important or not important to them as individuals, to enable students to be active at school, and why, as well as what actions they perform to demonstrate such value. The perceived impact and benefit of enabling students to

be active was described as developing capacity for future student role modelling and for lifelong, health and wellbeing.

Responses brought attention to a number of outcome-based motivators as being related to their capability- that is by enabling students to be active, something positive results, "seeing students achieve outside of class and within the community helps with positive focus and direction for academic achievement" (17 DM R). Physical activity is seen to improve learning and on task behaviour, "students tend to work better if they are involved in physical activity" (15 DM U) and "believe physically fit enables you to be mentally alert-better learner" (25 DM U). Physical activity is also a way to prevent maladaptive behaviour, "they get bored … then get up to mischief" (4 DL U) and "they can burn off excess energy in order for them to be more alert in the classroom" (26 DH U). Everything impacts on everything else, like ripples in a pool, sooner or later they touch on all the sides" (10 DM U). For respondents, understanding the value of students being active in relation to learning was important, "there needs to be a balance with active physical activities more in the student's daily routine" (22 DM U).

Respondents were also motivated to enhance the schooling experience with activity and as part of a more holistic approach to education, physical activity was seen as an "excellent way to provide a broad curriculum" (7 DM U). Physical activity was described as vital, "it encourages healthy competition, health and social wellbeing" (18 DL U); "being active with their friends … leads to health benefits, social and interpersonal skill benefits and fun and enjoyment" (4 DL U); and "physical exercise is crucial for balancing tinana, wairua and hinengaro. In addition, the respondents' own school experience informed their ongoing value for physical activity, "was the highlight of my school day … I also want to enable that same feeling for my students" (4 DL U).

Respondents found value in enabling student's physical activity, as it contributes to their overall individual development and addresses a number of wider problems, for example, "child obesity, poor diets, lack of motivation" (3 DL R); "there is nothing else for them to do" (4 DL U); "obesity is a huge world-wide problem and I feel students are becoming less active" (13 DM U); "NZ is one of the most obese countries in the world. Girls are starting to drop out at 8" (14 DM U); and "youth in general are less active … with poor social skills, problem solving, communication and cooperation skills" (18 DL U). In sum, the heavy responsibility of student wellbeing and the use of physical activity to mitigate such problems was brought to the forefront throughout the value-based responses. The value for students being active was clearly

acknowledged throughout the findings, with the perceived benefits described by respondents to be in alignment with literature, that students being active can contribute to lifelong and positive health and wellbeing outcomes.

School-Based Factors: Environmental

The respondents described the capability of their school's physical environment and brought forward three main ideas: (1) the physical surroundings impact on capability, (2) staff capability can be limited or enabled by the provision of and access to facilities and sports equipment and (3) for staff, the student experience was a key consideration surrounding capability.

The Physical Surroundings Impact on Capabilities

The physical surroundings discussed by respondents included the natural physical environment of schools which was said to influence the capability to enable activity. Staff can feel limited by their natural surroundings, "No trees, nothing grows, including grass. Very sandy" (6 DH U); "not a huge amount of open green spaces within the school - the field is geographically far away from some areas. All areas for sports are on one side of the school" (11 DM U). In addition, the proximity of suitable spaces/areas for activity can limit capability to enable activity, respondents explained their capability is complicated by access, "Relatively long walk to gym" (25 DM U); "We can't move outside (sometimes, I think it would be good to tell them to go for a quick walk around the block to re-energise) because then we run the risk of interrupting/ affecting the many other classrooms and teachers" (24 DM U). Respondents are having to factor in distance and the surrounding classrooms when considering opportunities to enable activity.

Many of the spaces and facilities mentioned were also outdoors, thus weather can influence capability as well as shape how much activity takes place, "lack of wet weather cover and only 1-gym" (10 DM U) and one respondent states, "early term 1 and late term 4 when it gets hot - less activity" (21 DM U). While for some, the relationship between facilities and weather can be viewed as a deterrent, weather can also work to positively impact on capability to provide outside activity opportunities, "we are fortunate with our local climate. This enables many days of outside activities. Our geographical location gives ready access to the beach which is used frequently by PE classes" (20 DM U). For some respondents, looking beyond the school's physical environment to spaces that work for them can also enhance their capability to enable students to be active,

"Plenty of fields plus we're located next to public reserve which we use" (10 DM U); "We are in close proximity to beach, bush, field and court so external activity programmes do happen sometimes" (18 DL U).

Sufficient Supply and Access Impacting on Capabilities

Within the school's physical environment, respondents identified a number of different types of facilities used to enable students to be active: gymnasium/arena, turf, pool, gym, space, changing rooms, fields, courts, and indoor versus outdoor spaces/transitions. Additionally, the supply of facilities and equipment in relation to roll size (number of students enrolled at the school) was highlighted by respondents as an issue. Not having enough facilities and/or equipment to service the number of students at school can limit staff's capability to enable students to be active, "the school still has the same gymnasium it had when we had 700 students. We now have 1800 students" (20 DM U); "Sometimes space is a problem on the field and courts" (13 DM U). Facilities and equipment were described as playing a role in the creation of opportunities for physical activity to occur and can limit capability of staff at times.

Equipment was described as basketball hoops, mountain bikes, outdoor gear and generalised as 'sports equipment'. A number of aspects relating to equipment impacted on capability and included sufficient provision, storage and maintenance, open access and having a variation of facilities and/or equipment. For example, "There is no climbing apparatus for younger students to explore and be active. Don't always have enough sports equipment" (13 DM U); "after a while, you get tired and just lock everything up because you need a break. Not having lockable storage bins or containers where equipment can be left for students to grab during breaks" (4 DL U). Respondents also explained that it is not simply one factor at play when thinking about capability to enable students to be active, for example, having sufficient access to both facilities and to resources is emphasised, "We are very well resourced so not limited by gear, only by space" (1 DM U).

Open and flexible access was also highlighted, respondents explained that access can be experienced as limiting or enabling capability of staff, "we don't have access to equipment and resources all the time" (5 DL U); lunch time sports shed where students can issue sports gear during the break" (11 DM U); "We only let the students access to indoor facilities or equipment at lunchtimes. Courts are locked at night and during the weekend" (26 DH U); If resources are required there is usually no problem unless it is requested at a late notice (15 DM U). Complexities

such as who or when equipment/facilities can/cannot be accessed within the school environment also impacted on capability to enable activity, “only 1-gym, booked out for PE classes” (10 DM U); “Equipment and resources are available under strict supervision because these are still class programme tools too” (18 DL U). One respondent described the assumed differences in access as being mitigated by one’s role at school, asserting the idea that access impacts on capability. For example, those with a role outside of physical education have less access and therefore, limited capability, “PE teachers have the best access via the curriculum. The rest of the teachers will find it difficult to build any physical activity into their educational programmes” (19 DM U); “PE staff usually open up the area at lunchtimes for students to come in and play” (4 DL U). Respondents explained that having plentiful and easily accessible equipment or resources enhanced their capability to enable students to be active.

Student Experience was a Key Consideration Surrounding Capability

Beyond simply access to a building or space, undesirable experiences or spaces were also mentioned to limit capability, and students’ enjoyment was a key component considered by staff. For example, “some of our indoor spaces are old and our changing rooms are not nice. Therefore, students don't like getting changed” (26 DH U); and,

> “No outside basketball hoops for students who want to do bball[sic] at lunchtimes ... not having lockable storage bins or containers where equipment can be left for students to grab during breaks … Have not replaced broken treadmills and bikes in our cardiovascular room for 20 years which means girls don't want to use the room” (4 DL U).

One respondent called into question the built environment as well as the natural environment, asking how opportunities for spontaneous movement can be created and where students can take advantage of being active,

> “Sport stays in its place. Electives offer a few opportunities, e.g., bushwalking, skating. But it's not the norm. I even look at the built environment...why do kids go from playgrounds at Intermediate to this prison here? A basketball hoop, a field - it's just like a prison. How can we create opportunities for spontaneous movement, for joy, where we celebrate our bodies and how they can move" (14 DM U).

In summary, there were a vast range of factors described by respondents around how the environment works to limit or support staff capability to enable students to be active. Key ideas

highlighted by respondents included what was present in the physical environment that promotes physical activity or what was missing to enhance staff's capability to provide opportunities for students to be active. The sufficient supply and access of spaces, facilities and equipment also played a role and came with a number of complexities, staff also took into consideration the student's experiences when thinking about their capability to enable student's physical activity.

School-Based Factors: School as an Organisation

When asked about the school as an organisation, four main themes were found: (1) types of opportunities, (2) resourcing, (3) structure and (4) workload.

Opportunities

The current provision of or lack of opportunities for staff to enable students to be physically active at school brought to the forefront three types of opportunities: (a) those within structured learning blocks (b) outside of structured learning; and (c) opportunities for staff's individual pursuits. *Opportunities within learning blocks* included physical activity-based electives/experiences as well as education outside the classroom (EOTC), for example, "Elective programme - one afternoon per week students and staff stop schoolwork and partake in a huge range of chosen activities most of which are outdoors and highly active" (16 DM U). One respondent stated, "it is all optional and up to the individual teacher to do as little or a lot of physical activity" (13 DM U), placing responsibility solely on teachers worked to assume a level of capability to enable students to be active exists, "up to the teacher planning and creativity on how to implement in school (8 DL R). However, for those more experienced, opportunities within learning may not be a limiting factor, "As an experienced teacher I make time in my curriculum area to undertake this [enable physical activity]" (17 DM R).

More explicit examples of opportunities (for staff to enable students to be active) existed *outside of structured learning blocks,* and included activities for students at morning tea/lunchtime (which may/may not be social), hapu sports and house activities that focused on physical activity and participation. Within most responses, tensions between teacher-led and whole-school opportunities arose, one respondent noted that only "large sporting codes" are being "pushed" and they are required to gain "permission" to include physical activity within class time (10 DM U). Others felt less restricted and described the whole-school approach as presenting

more opportunity for staff to enable students to be active, “We have some whole school activities which allow staff to enable students to be more active. This includes Cross Country and Athletics day. We are also developing the house competition via physical activity” (23 DM U). Another noted a different tension in how the elitist school-wide culture limited their capability to enable activity due to holding a more holistic view to sport/activity, “what limits me is the sports philosophy here” (14 DM U). These differences in approaches to physical activity and to participation can limit staff’s capability. Respondents made clear that a school's value in staff enabling students was perceived when the culture that makes space for physical activity is in alignment with staff’s philosophies, school-wide action and school policies.

In addition, respondents highlighted how opportunities can be met with its own set of challenges, while lunchtime for some is opportunistic, “long enough to eat and be out playing sport” (11DM U), for others it is not, “morning tea break is too short to eat and play sport/be active” (11 DM U). Responses identified a “lack of scheduled time to be active” (17 DM U) and highlighted how individual factors, such as student’s motivation, can play a role, “many students choose to go on electronic devices … many inactive students who just aren’t interested in physical activity” 13 DM U). Therefore, student engagement can be experienced as both a school-based and a personal factor impacting on the capability of staff. Lack of time and motivation were perceived as impacting on opportunities and on staff’s capability to enable students to be active while at school.

A number of *opportunities for staff’s individual pursuits* for staff to enable students to be active were present. This included through volunteering for coaching, managing teams or activities, as well as through watching and acknowledging student’s sporting endeavours. For respondents, a shared value was found in opportunities for staff to pursue their individual physical activity endeavours, “Great support for staff to pursue any sporting endeavours which filters down to our students. Role model perseverance and hard work has been highly beneficial to our student’s physical activity levels” (2 DL R). The positive impact of staff participation was also reinforced by another respondent, “staff involvement in games always implores [sic] more participation”. Furthermore, for those outside of the P.E curriculum, capability has relied on those opportunities outside of their day-to-day school-based role, “my subject area is not a physically active one. Other than role modelling, I can only demonstrate this [value for students to be active] by going outside of my subject area or over and above with coaching” (11 DM U). Value was also experienced

through the acceptance, recognition and provision of such opportunities for staff's own physical activity/sport modelling, with their efforts of going "above and beyond" being vital to how schools as organisations are seen to value physical activity. Across the findings, various implications for how schools can increase physical activity are brought to the surface, asking questions of the provision of opportunities and who these currently support or inhibit.

Resourcing

Resourcing was also a consideration of wider organisational factors at play when respondents reflected on opportunities that worked to help or limit them to enable students to be physically active and which may influence one's personal conversion factors. Resourcing was described by respondents as access to professional learning and development, workshops and coaching sessions with external providers/experts, and was frequently mentioned (10 out of 26 respondents). Funding was also seen to impact on the types of opportunities and experiences available, "funding so that we can take students out on EOTC experiences that they would not otherwise be able to do on their own" (4 DL R). Finally, the distribution of organisational resources is also relevant, for example, management of and distribution of people, budget, resources and professional development are all identified as impacting on capability. For example, "budget and management of resources is limited and time consuming (7 DM U); "The sports co-ordinator is very supportive - ensures we have gear and a place to train. Will also take students to Tauranga" (12 DM R); "The sports that are provided are well run and managed on the whole, however, this comes down to the person in charge … This is inconsistent. Finding volunteers willing to give up their time to coach or run physical activity is a huge barrier" (23 DM U). These responses touch on the number of factors at play when considering capability to enable students to be active but also work to assert the idea of enabling students to be active is compromised by lack of resourcing.

Structure

The school's structure was also a relevant organisational thread with the daily routine, timetabling, learning schedules as just some examples of structure discussed by respondents and which impacted on their capability to enable students to be active. For example, "The constraints of the timetable can limit what we do with the students … tight curriculum deadlines can limit what is offered" (27 DM U). Respondents described different ways in which a school's structure

exists, with variances found in routines, timetables and how physical activity may feature within a school day. According to one respondent, "timetable is fixed and expectations is that students attend the allocated classes (15 DM U), another stated, "students rotate between causing motion/activity moving between lessons" (16 DM U) and "days or block are set aside to cover sport and activity as a school and part of the school programme" (18 DL U). A number of limitations were found in the school's daily structure and in relation to enabling students to be active, including time in class, student's ability to stay engaged in learning and class size:

> "I am a classroom teacher, and the expectation is that the students are in the classroom for 60 minutes. This can be too long for some students to sit still, and/or maintain concentration levels. Getting them up and moving to revive their brains … is difficult because the class size makes the classroom space too small to do this efficiently and safely. We can't move outside … because then we run the risk of interrupting/affecting the many other classrooms and teachers" (24 DM U).

Respondents also discussed how the structure may work to exclude certain groups of students, "senior school do not have time to add physical active parts to their day" (3 DL R) and "P.E is an optional subject for senior students, and we believe if it was not optional there would be more of an opportunity for them to be active" (2 DL R). These accounts showed that senior students fall outside of compulsory physical education expectations through the curriculum structure itself. When respondents considered structure in relation to their capability, they identified potential ways to use the structure to enable students to be active, "We have scheduled study time one period a week. Perhaps there could be an option for students to come and do a recreational activity on that period if they don't want to study" (4 DL U).

Workload

Furthermore, components relating to the idea of workload were described when exploring the capability of staff within the school as an organisation. Specifically, the division of duty responsibilities, what is required to set up/organise resources/systems, and time. For respondents, a clear tension existed between the responsibilities of teaching, balancing the demands of educational outcomes, and balancing other organisational factors alongside making space for physical activity. These tensions were placed at the forefront for some when considering what helps or limits them to enable students to be active, "balancing academic needs and teacher requirements" (18 DL U), some explicitly mentioned their "need to effectively cover the whole

NZC [New Zealand Curriculum]" (6 DH U), with one respondent stating "sport stays in its place. Electives offer a few opportunities … but it's not the norm" (14 DM U). When asking respondents whether they felt their potential to enable students to be active in school is met or reduced, workload, prioritising academic achievement and the demands of the curriculum were key influences on their capability to enable students to be active.

In summary, there are a vast range of factors described by respondents around how the school as an organisation worked to limit or support staff capability to enable students to be active. Key ideas highlighted by respondents were around the types of opportunities that worked to enable physical activity or how various organisational factors play a role in the promoting of physical activity. Enabling activity is met with some clear tensions between the demands of school life, expectations, time availability, resourcing and educational requirements, all of which may or may not align with staff's desire or capabilities to enable students to be active.

School-Based Factors: Social

When considering how respondents experienced support from their school and other staff, responses were organised into an overarching theme of *collaborative social environments*. These collaborative environments included relationships, support, communication, problem solving, sharing of ideas, coaching, collaboration, coordinating of resources, the sharing of roles and willingness to help. Further, when these components were perceived to be present, this collaborative environment positively contributed to staff enabling students to be physically active.

Responses made mention of tokens of appreciation, encouragement and recognition as ways in which their schools demonstrated value for staff enabling students to be active. The way in which such value was enacted varies and was described by "[paid] units … encouragement" (3 DL R) "petrol voucher and a morning tea shout" (4 DL U); "coach jackets … space in mornings to discuss their teams' success/trials and tribulations" (11 DM U); "small gratuities … lunchtime shout … vouchers" (26 DH U); and "recognition, celebration, thanks via messages/cards/notes from BOT [Board of Trustees] and importantly remuneration via units of payment" (16 DM U).

Within this collaborative environment, support within the school was a key feature in qualitative findings and respondents can be challenged by the limited human resources available across the school space. A number of respondents described other staff as "willing to help" (16

DM U); “always available to provide assistance” (19 DM U); and “great support from other staff” (2 DL R). However, respondents experienced the enabling of student activity as additional to their school roles/load, viewed as efforts above and beyond and a compromise or giving up of personal time was required, “It’s tough to just rely on teachers, heaps of teachers put in extra hours supporting sport” (5 DL U). Respondents explained that it was often the same people putting their hands up every year:

> “Finding volunteers willing to give their time to coach or run physical activity is a huge barrier. In a school environment where it is super busy already this becomes even more of a barrier. For some respondents, others are not as willing to give up their time to do ‘extra’ such as coaching or running activities” (23 DM U).

The presence or absence of feeling supported and encouraged in their efforts and the congruence of value found in enabling students to be active between staff members and their school were key components of potential being met or reduced.

Responses highlighted the importance of the staff-student relationship and how relationships can help or limit the enabling of students to be physically active. Staff valued having positive relationships and positive experiences with students in order to enhance their ability to enable students to be more active was vital, “a precursor to getting to participate in any activity, physical or mental” (19 DM U); “relationships are key to all things” (20 DM U); “key ingredient” (25 DM U); and another stated, “a great significance in enabling students to be active” (2 DL R). For some, having a relationship with students was seen to be the foundation to staff enabling activity (23 DM U). Furthermore, building relationships was key, “if you cannot build positive relationships with students, they will be less likely to work through activities you are trying to encourage them to do” (23 DM U).

Respondents described a number of positive outcomes or benefits that resulted from the staff-student relationship and this was also perceived as motivators for staff to enable students to be active, “[students] will work for you. If you can establish a mutually respectful relationship that is genuine and clearly defined … have their best interests at heart … they’ll value what you say and take your words on board … Long term change comes through modelling and encouragement” (10 DM U). Positive consequences of enabling students to be active was also mentioned, “this develops better student/teacher relationship[s]. Allows me to support and guide

students through academics and lifelong learner" (17 DM R). Recognising the direct impact of enabling students to be active was also a key part of responses around realised potential.

In summary, there are a vast range of factors described by respondents around how the social school-based factors worked to limit or support staff capability to enable students to be active. Respondents explained a number of factors which worked to create collaborative environments that enabled staff to support students to be physically active. The staff-student relationship was a key element of staff's capability to provide opportunities for students to be active, and this relationship was found to have a number of positive benefits. Overall, school-based factors were described to contain a number of complexities and especially when describing personal capability factors working to enable student's physical activity in school.

Discussion

The aim of the current research was to identify what impacts on secondary school staff's capability to support young people's physical activity at school. Focus was given to understanding the extent to which personal and school (social, organisational and environmental) factors are at play and to identify ways these might help to support school sites to improve the wellbeing of young people through physical activity. The approach of this research was not to assert one particular notion of functioning (how staff should enable students to be active), but rather to focus on surrounding factors impacting on staff capabilities and highlight influencing factors (specifically around supporting our young people to be active). This approach frames the discussion below where a number of key points will be discussed in line with capabilities approach.

In response to my research questions, below I have addressed what personal or school-based (environmental, social and organisational) factors supported or limited staff's capability to enable the physical activity of students while at school. I discussed the findings in relation to the research questions, such as whether decile or location factors had a relationship with perceptions of capability. Then I reviewed this analysis in relation to the previous literature, considered the implications and limitations of the study, and also concluded with the final take home points.

Personal Factors Impact on Capability

The quantitative data showed that overall, staff perceived that they have the capabilities to enable students to be active, and personal capabilities are rated as strong despite acknowledging deficiencies in support, the environment and/or in the school as an organisation. With an overall sense of having personal capabilities, staff also valued physical activity because they saw it as influencing other important factors including student engagement, individual development, wider health-related and/or behaviour problems, and contributing to a more holistic school experience. Staff also described personal capability in relation to having varying formal qualifications, relevant knowledge/understanding, and/or prior physical activity/sporting experiences. Findings identified that staff required a certain level of physical activity related abilities, knowledge and/or skills, and that a positive relationship with students is seen to be advantageous for student's participation in activity. It may also be more important to have both an understanding of how to and the confidence to capitalise on prior knowledge, skills, abilities, resources and/or experience, in order to convert these into physical activity opportunities for students.

The idea that personal capabilities influence the likelihood of physical activity occurring in the current research also features across the literature. For example, Jenkinson and Benson's (2010) research found the teacher's own abilities to engage students was an obstacle to student participation. Further, the idea of personal capability having practical implications for enabling activity found in the current research aligns with McMullen, Kulinnnna and Cothran's (2014) findings, that the likelihood of physical activity is influenced by teacher's preference for quick, manageable, purposeful and fun activity breaks. When considering Cookson's (2005) research, the idea that staff as individuals are choosing a particular functioning (enabling physical activity) because it sits within their capability set is also supported by current findings. Functioning may also be moderated by staff's ability to convert their resources, skills and knowledge into suitable and tangible physically active opportunities, working to support findings around the meaningful associations with intentions and achieved behaviours (Ferrer et al., 2014).

In addition, the benefits of physical activity are widely discussed in literature and also featured within the current research. While most, if not all respondents recognised the importance of students being active, there was also a clear call for support and access to professional learning and development, workshops and coaching sessions with external providers/experts (10 out of 26 respondents). This could account for examples of conversion factors in relation to personal capabilities, with staff identifying what more is needed in order to achieve certain functionings - enabling students to be active. Overall, the present study demonstrated the importance of personal capability and in order to increase physical activity, it is key to utilise staff's capabilities in ways that maximise their interests, resources and abilities.

School-Based Factors Impact on Capability

The analysis of what school-based components supported or constrained the capability of staff will be introduced in the next few sections and is organised by organisational, social and environmental factors. Across these findings, not one single dominant factor was identified as the key to staff enabling students to be active, but rather an interaction between numerous components. Additionally, and across the rating categories, the school's environment, school as an organisation and school overall were in general rated similarly, suggesting that these school-based elements are perceived to also share the load in how they support staff to enable students to be active.

Organisational Factors at Play

When investigating the school as an organisation, staff described organisational-factors in terms of: the division of duty responsibilities; opportunities to deliver activity; the limited time and space in school's daily structure for activity; the support to set up/organise resources or systems; and referred to enabling activity as efforts above, beyond or outside of their daily job. In this research, staff perceived physical education staff to have more capability, access and opportunity to enable students to be active than teachers of other subject areas. Staff experienced limited agency at times, despite holding value for physical activity and despite being motivated to enable students to be active, one's freedom or choice to act (enable activity) was a missing component. The types of opportunities staff had to enable students to be active varied and it was evident staff felt constrained by the structure of the school day, the sheer workload, the level and/or distribution of resourcing and the teaching demands. Further, a clear tension existed in the findings around navigating the responsibilities within the school, the demands of educational outcomes and navigating other organisation-based factors necessary in order for staff to enable students to be active. These findings were somewhat expected given the busy nature of schools and through this research, the complexity of what organisational factors impact on the capability of staff to enable activity was further acknowledged.

The current study supported Watson et al.'s (2017) literature on classroom-based interventions with findings highlighting how organisational factors clearly influence the provision of physical activity. The tension between value, motivation and choice was also found in Ferrer et al.'s (2014) work measuring capability for healthy diet and physical activity. Both studies suggest that real freedoms to pursue their values are influenced by structural factors, staff hold value for enabling activity, have the motivation but may not always have the choice to do so. Furthermore, despite previous research affirming that no negative effects on academic performance occur when integrating physical activity into schools, findings in the current study show that priority is still being placed on achieving in other curriculum areas over and above students being physically active (Hernandez, 2014; Howie & Pate 2012; 2018). Collectively, the present study demonstrated the importance of an organisational culture that values physical activity in ways that map onto staff interests and abilities.

Social Factors Impact Capability

The statistical analysis of the role of school support in enhancing or limiting staff capability to enable students to be active showed school's support of staff is inhibiting their personal capability to enable students to be active. Those from urban locations felt their environment was enhancing capability more so than the data set as a whole, with little differences in support found when comparing decile ratings. Staff used a number of components to describe the school's support of staff and which formed the idea of collaborative environments (relationships, communication, problem solving, helping others/collaborating and sharing ideas, resources, or roles). In particular, the staff-student relationship was explained as being an essential element when staff considered enabling activity. For this study, the interaction of these factors influenced capabilities while the lack of these components was viewed to inhibit staff's capability to enable activity and the presence worked to enhance capability.

The current study also supports Hu, Zhou, Crowley-McHattan and Liu's (2021) literature on factors influencing participation in physical activity, that at the interpersonal and organisational levels, support was found to be a positive predictor of participation. For the current study, support can work to inhibit or enable staff to support student engagement in physical activity. Connecting the findings around collaborative environments to Yeung and Breheny's (2016) work, while many factors may be working to convert staff's characteristics into functioning (staff enabling students to be physically active), it may in fact be the presence of support alongside personal capabilities which drives action. Furthermore, the idea that a whole school approach and school staff working in partnership are essential for engaging students in activity is supported by the current findings (Hernandez, 2014; MoE, 2017). When addressing physical activity within schools, all aspects and people of a school need to work together to cultivate physical activity school cultures. Overall, there are various social factors that influence the enabling of physical activity, and value is found in student-staff relationships and in school members working together to promote physical activity.

Environmental Factors Impact on Capability

The statistical analysis of the role of environmental factors in enhancing or limiting staff capability to enable students to be active, showed that most staff felt their school environment was higher than average in enhancing staff capability. In particular, those from urban and/or low decile felt their environment was enhancing capability more so than data set as a whole. The qualitative

responses positioned various elements of the environment as working to limit or enhance staff capability to enable students to be active. The environment was described by the physical surroundings, the provision of and access to facilities and/or equipment, access or and the environment in relation to the student experience of being active. Across these environmental elements the staff described, the importance of having the right physical surroundings was acknowledged, such as a usable, suitable and accessible physical spaces (e.g., an age/stage appropriate playground or area that is positioned so to not disturb other classes but is located where time to get to it does not account for the activity, and which could be accessed spontaneously (not requiring to be booked out in advance). In addition, if such areas or activities required equipment, this would be barrier-free and easily accessible (not locked up for example), and which students enjoyed when using (being of a good standard, abundant and which was of interest to the student). In these accounts, respondents showed the complexities involved in combining all three elements for the physical environment to enhance rather than limit their capabilities to enable students to engage in physical activity.

Khan et al. (2008) highlighted environmental barriers as inversely associated with physical activity when exploring deterministic factors. For their study, environmental barriers related to safety concerns, lack of access to and lack of proximity to recreational facilities. Access and proximity were also elements highlighted by staff in relation to the environment and physical activity. Also, their work suggested an inequality in availability of recreational facilities in relation to ethnic and socioeconomic disparities in physical activity. An interesting point to consider against current findings of low decile and urban schools which experienced their environment to enhance the student engagement in physical activity.

The current study supports the literature by Rickwood (2013) around the value of and importance of interacting with school artifacts to positively impact on activity. That is, relevant and maintained spaces or equipment which are accessible within the school breaks were found by Rickwood to impact on physical activity, and also on staff capabilities to enable students to be active. Further, Sterdt, Liersch and Walter (2014) also found access to sport/recreational facilities was one of their many correlates associated with physical activity. Respondents of the current study shared how access and the sufficient supply and provision of equipment impact on their capabilities to enable activity of students. Findings reinforce the importance of considering

various components of a school environment, including the interaction of environmental factors, to enhance student engagement of physical activity.

The current study supported McMullen, Kulinna and Cothran (2014) literature on teacher's preferred activity breaks with findings highlighting how the environment clearly influences the provision of physical activity. Respondents of the current study shared the preference for easy to manage, quick and enjoyable activity breaks and also found managing movement in/around classrooms influenced activity breaks. Furthermore, findings also reinforced the importance of considering the physical features of school environments especially when looking at the provision of suitable spaces, facilities, equipment and opportunities for staff to enable students to be active (Spence & Lee, 2003). The analysis of school-based environmental factors provided insight into the various components that impact on staff's capability to enable activity, and the way staff interact with these environmental factors is complex. Overall staff want easy access to spaces and resources that promote enjoyable physical activity experiences for students.

Personal and School-Based Factors Interacting

As described above, respondents can frame school-based factors in absolute terms, such as the provision of gyms, student-staff relationship or workload; however, these factors were not found to be independent of each other. For example, staff needed a number of factors, such as flexible time and quality equipment fit for student's interest, and/or opportunity within their learning lesson, space on the field and good weather. Importantly, the way in which respondents discussed the school-based factors in relation to their personal capability also brought to the forefront the practical implications of enabling activity. For example, in the process of engaging students to be active, numerous considerations were made - where activity can take place, how and when to access this space/area, equipment/resource needed, support needed and types of activity that will peak students' interest so that it is an enjoyable experience. These considerations interacted with personal capability to drive activity, thus further influencing how staff enable students to be active.

When exploring personal capability in relation to school-based rating categories, differences suggested staff experienced school as limiting their ability to enable students to be active. As a result, the idea of 'goodness of fit' was not reinforced by these findings, when there

is a matching between the staff and the school, this can contribute towards positive effects (Spence & Lee, 2003). In addition, the tension between personal and school philosophies around physical activity and participation was found to impact on staff's capabilities to enable activity. Using two very different examples: respondent 14 ratings of school, support and environment were low but personal capabilities high is an example where there is not a goodness of fit; in contrast, respondent 23 rated four out of five across all rating categories. To seek further insight, the qualitative data was examined to explore these differences and this idea of different philosophies emerged. Respondent 14 positions themselves as having a very different philosophy to the elitist-sport whole school approach of the school, whereas respondent 23 described having a similar philosophy to their school on this issue, a more holistic approach to participation.

Across the findings, a number or elements are perceived to be working to support or inhibit staff to enable students to be active. The idea of multiple components playing a role, is also featured in literature on effective interventions to promote physical activity (Mannocci's (2020; Van Sluijs, McMinn & Griffin, 2007). In sum, effective school-based interventions required a multicomponent approach and current findings support the idea of various and interactive factors influencing physical activity. Overall, this analysis provided valuable insight into how school-based factors interact and work to impact on staff's capability to enable students to be active at school. The practicalities involved, student experience and some wider implications of engaging with support, the environment and/or the school as an organisation are key considerations for staff. Therefore, it was worthwhile to consider how staff interact with wider school-based to enhance student engagement with physical activity.

Location and Decile Do Not Account for Differences

Inferential statistics showed no significant differences in capabilities against low/medium decile or urban/rural categories. This was unexpected given the prediction that those of lower decile and/or rural would have less resources, that could in turn, limit capabilities. The analysis of the qualitative data pointed to some of the reasons why school staff might report differences and a number of proposed mediators should also be considered. For example, the distribution of resources at a ministerial level differs (e.g., funding based on school's decile rating, staffing and student numbers or needs) and thus may play a key role in the provision of equipment, personnel

and/or resources buffering capabilities. Differences in how staff perceive the school's environment may also be moderated by nearby community-based spaces or support available. For example, the presence of expert coaches/volunteers within the school community can buffer capabilities in various ways (e.g., expertise, equipment, connections to spaces/resources).

Further, it might be that individual factors of the current sample are stronger and as Robeyns (2005) pointed out, personal conversion factors (e.g., physical activity knowledge, abilities, skills) can influence how a person can convert physical activity-related characteristics into the enabling of activity. Given the strong value for physical activity found in the data, individual-level aspects may be represented to a greater degree. In sum, when considering the overall functioning or capability of staff, personal capability may be more influential rather than factors relating to the school's location or decile rating. However, the size of the sample in the current study was small, and overall, what these findings point to is the need for more research to confirm these findings.

Review of Research Approach

The current study offered a novel approach to exploring physical activity and capabilities within a school context utilising both ecological theory and the capabilities approach. This study's approach was useful to help explain the findings in relation to effective individual–environment relationships, with the idea of 'goodness of fit' being one of the features of this study's discussion (Spence & Lee, 2003). The complexities surrounding personal and school-based factors, as well as the relationship between these factors was an important aspect of the current findings. This richer understanding of the complexities involved in staff enabling students to be active can support changes and future considerations to positively impact young people being physically active.

The school context is seen as an influential determinant of student participation in physical activity and literature acknowledges this through the various multicomponent approaches and studies (Hu, Zhou, Crowley-McHattan & Liu, 2021); Russ, Webster, Beets & Phillips, 2015; Watson et al., 2017). A clear explanation of personal and school-based factors influencing the capability of staff to enable students to be active was presented. The current study afforded a wide range of elements to be discussed by respondents and including further insight into the practical implications involved from school staff's perspective. Through the ecological and capabilities

approach, an understanding of the relationship between physical activity, secondary school staff and the school culture was described from the perspective of staff. The current study provides a response to the aforementioned literature on schools and physical activity of young people (McMullen, Kulinna & Cothran, 2014; Hynynen et al., 2016; Watson et al., 2017). Not only were such school-based factors as the opportunities for physical activity within school discussed, suggested by Rickwood (2013), but opportunities were positioned in relation to personal capabilities, the school as an organisation and the environment. This study's approach was useful to help explain the findings in relation to influential people within key settings in relation to addressing the sub-optimal activity levels of adolescents.

Limitations

The study had several limitations pertaining to the sample and the methods. I studied a single region in New Zealand with data drawn from a convenience sample of schools, so results may not be generalisable to other areas or the wider population. Based on the characteristics of the wider sample invited to participate, the findings contained an underrepresentation of responses from low decile schools and an over representation of medium decile schools. In addition, the data was overrepresented by teacher/classroom-based roles and leadership roles, while underrepresented by student wellbeing- or teaching support-based roles (pastoral care/counsellor, administrative/non-teaching). We might assume that those who are motivated to support student engagement with physical activity were more motivated to participate, this may also account for these findings.

The survey was developed for the purposes of this study with data based on self-reports, while honest reporting was encouraged by ensuring confidentiality during data collection, assessing the reliability of the survey is not possible. This preliminary evaluation did not assess survey reliability or construct validity. Our study was focused on school-based factors and did not assess demographic factors of participants, it is possible that individual and/or other contextual factors (e.g., community, home) also play a role. Also, a predefined analytical framework was used and although the analysis was open to unexpected findings, a grounded theory methodology might have yielded alternative interpretations. Lastly, causal relationships cannot be inferred from this data.

Future Directions

In response, future studies could address these sample and methodological limitations by replicating this research in different regions, schools of varying decile ratings and location, as well as including demographic factors. Also, given that physical activity can be regarded as a key pillar of wellbeing and when considering where the responsibility to enable students to be active can be placed across literature, in the current study only one respondent upheld a role relating to student wellbeing (pastoral care/counsellor). Further research could focus on where the responsibility to increase student activity levels can be situated and the potential of all school staff to contribute. Using standardised assessment tools around personal capabilities, confidence and support, against measuring the frequency, duration or intensity of physical activity actualised by staff is suggested. This may provide richer understanding of the direct impact of capability factors on participation in physical activity and provide a clear direction for future interventions. Further, it would be worthwhile to follow up on the types of opportunities seen to be more effective or beneficial in enabling physical activity, and for whom (for schools, staff and/or students) and how these may work to convert capability more explicitly. In addition, the tension between school-wide and staff-led approaches, opportunities and philosophies would be a useful space for investigation alongside the capability staff to enable students to be active.

Conclusion

Overall, focusing on insight beyond the student's perspective was key to providing a multi-level examination into factors that inhibit and/or contribute to staff enabling students to be physically active. On the basis of my analysis, to increase student and staff engagement with physical activity I suggest the following:

- Define your school's philosophy around physical activity collaboratively with staff and consider the practical implications for your staff and your students. Look to school-wide approaches to promote staff engagement and student participation in physical activity against your defined philosophy.
- Identify internal change levers within the school as an organisation to intentionally prioritise student engagement with physical activity. For example, engage with workshops/professional development for staff to develop skills, confidence and resources to effectively introduce physical activity opportunities that are enjoyable for students.
- Evaluate how staff can easily engage with your school's environment for the purpose of student participation in physical activity. Identify environmental elements which promote physical activity that is easily accessible, enjoyable for students and barrier free.
- Utilise the strengths present in your school staff, school-wide and relative to physical activity (beyond sporting codes alone). Foster ways to capitalise on these strengths through a collaborative approach, encouraging all staff to work together, share resources and to grow capabilities in others.
- Foster student-staff relationships as these are essential to student engagement in physical activity and can positively contribute to the wellbeing of students in a number of ways. Develop school cultures which foster enjoyable physical activity experiences for all involved.
- Recognise and celebrate the various efforts and ways school staff enable students to be active. The value of students engaging with physical activity is a key driver for their investment of time and energy. Bring attention to these meaningful ways your staff are supporting students to enjoy physical activity, over and above their current roles.

In conclusion, the impact and benefit of enabling students was clearly recognised by staff, however, the implications of enabling activity can challenge staff. There were a number of personal and school-based factors interacting and influencing student engagement in physical activity while at school. These have usefully been identified through a capabilities and ecology approach.

Appendices

Appendix A: Survey Questions

Consent to participate (see Appendix C)
*required a selection to be made in order to move onto the survey

Respondent's School-Based Information

1. My school's decile is (select from list):
    a. Low (deciles 1-3),
    b. Medium (deciles 4-7)
    c. High (deciles 8-10)
2. Please describe your school's location (select from list):
    a. Rural
    b. Urban
3. What is your role/job at the school? (select from list of amalgamated positions):
    a. Teaching Staff, Teacher/Learner Support
    b. Senior/Executive Leadership Team
    c. Head of Faculty/ Department, Dean, Other leadership roles
    d. Administration, Non-Teaching Support Staff
    e. Student wellbeing/ Counsellor/ Pastoral Care

Rating Categories

1. *School Overall:* My school is capable in the way they enable students to be physically active while at school.
2. *School's Support:* My school is capable in the way they support staff to enable students to be physically active while at school.
3. *School Environment:* My school's physical environment reflects capabilities to support staff to enable students to be physically active while at school.
4. *School as an Organisation:* My school as an organisation reflects capabilities to support staff to enable students to be physically active while at school.
5. *Personal:* I am capable when thinking about how I enable students to be physically active while at school.

Qualitative Questions

1. How does your school's environment LIMIT you as a staff member to enable students to be physically active at school?
2. How does your school's environment HELP you as a staff member to enable students to be physically active at school?
3. In what ways are equipment or resources in your school used to HELP you as a staff member to enable students to be physically active at school?
4. In what ways does equipment or resources in your school LIMIT you as a staff member to enable students to be physically active at school?
5. Tell me about your school's attitude or culture towards staff enabling students to be active at school? Is it important or a priority? How so?
6. What opportunities are currently provided to staff that help you as a staff member to enable students to be more active?
7. What types of opportunities are needed to help staff to enable students to be more active?
8. How do other staff support you to enable students to be active?
9. What kind of support is needed from other staff to better assist you to enable students to be active?
10. Considering your school's structure, such as the daily routine, timetables, scheduled breaks as just some examples, in what ways does the school's structure HELP you with enabling students to be active?
11. Considering your school's structure, such as the daily routine, timetables, scheduled breaks as just some examples, in what ways does the school's structure LIMIT you to enable students to be active?
12. Thinking about the school as an organisation, in what ways does your school value staff members helping students to be active at school? Why/why not?
13. What abilities, knowledge and/or skills HELP you to enable students to be active?
14. What abilities, knowledge and/or skills LIMIT you to enable students to be active?
15. In what ways do you feel your potential to enable students to be active (in school) is MET?
16. In what ways do you feel your potential to enable students to be active (in school) is REDUCED?
17. In what ways can the relationship with your students HELP you when enabling students to be active?
18. In what ways can the relationship with your students LIMIT you when enabling students to be active?
19. How does time or workload HELP you to enable students to be active?
20. How does time or workload LIMIT you to enable students to be active?
21. Why is it important/not important to you, to enable students to be more physically active at school? What actions do you perform to demonstrate this value?

Appendix B: Ethics Letter of Approval

Figure 17

MASSEY UNIVERSITY
TE KUNENGA KI PŪREHUROA
UNIVERSITY OF NEW ZEALAND

Dear:

Thank you for your notification which you have assessed as Low Risk.

Your project has been recorded in our database for inclusion in the Annual Report of the Massey University Human Ethics Committee.

The low risk notification for this project is valid for a maximum of three years.

If situations subsequently occur which cause you to reconsider your ethical analysis, please contact a Research Ethics Administrator.

Please note that travel undertaken by students must be approved by the supervisor and the relevant Pro Vice-Chancellor and be in accordance with the Policy and Procedures for Course-Related Student Travel Overseas. In addition, the supervisor must advise the University's Insurance Officer.

A reminder to include the following statement on all public documents:

"This project has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher(s) named in this document are responsible for the ethical conduct of this research.

If you have any concerns about the conduct of this research that you want to raise with someone other than the researcher(s), please contact Dr Brian Finch, Director - Ethics, telephone 06 3569099 ext 86015, email humanethics@massey.ac.nz. "

Please note, if a sponsoring organisation, funding authority or a journal in which you wish to publish requires evidence of committee approval (with an approval number), you will have to complete the application form again, answering "yes" to the publication question to provide more information for one of the University's Human Ethics Committees. You should also note that such an approval can only be provided prior to the commencement of the research.

Yours sincerely

Dr Brian Finch Chair, Human Ethics Chairs' Committee and Director (Research Ethics)

Research Ethics Office, Research and Enterprise
Massey University, Private Bag 11 222, Palmerston North, 4442, New Zealand T 06 951 6841; 06 95106840
E humanethics@massey.ac.nz; animalethics@massey.ac.nz; gtc@masseyac.nz

Appendix C: Consent to Participate in Research

Statement used within the online survey: I volunteer to participate in a research project conducted by Lizzy Horlock from Massey University. I understand that I will be asked to complete a questionnaire about what staff think about physical activity in/around their school. Specifically, your view and experiences of how you are supported to enable students to be physically active at school. Staff from secondary schools in the Bay of Plenty NZ are invited to participate in this research underpinned by the capabilities approach.

1. My participation in this project is voluntary and involves completing this online questionnaire developed by the researcher. I understand that I will not be paid for my participation. I may withdraw and discontinue participation at any time without penalty prior to submitting the online questionnaire responses.
2. Should I agree to take part in this study, data will be collected via this online questionnaire, requiring a proficient level of the English language. The questionnaire is made up of tick boxes and open-ended questions, taking between 15 to 30 minutes to complete, depending on the response you want to provide. We encourage as many detailed responses as possible to ensure insightful and in-depth data is collected.
3. I understand that I may find the questions interesting and thought-provoking. If, however, I feel uncomfortable in any way during the survey, I have the right to decline to answer any question or not submit my responses.
4. My participation in this study is at my discretion and my school will not be informed. All completed questionnaires are then anonymously submitted. An online link to the survey allows me to choose when and where I participate, which protects the anonymity of individuals and schools. This precaution will uphold my anonymity and prevent my individual comments from having any negative repercussions.
5. I understand that the researcher will not be able to link me or my school to any reports using information obtained, and that my confidentiality as a participant in this study will remain secure. The demographic data that we ask for; school's location (urban/rural), your role (from within an amalgamated list) and your school's decile, is designed to help us interpret the data without any school or respondent being identified.
6. Because I have submitted my data anonymously, I cannot receive an individual copy of the report, however, I understand that all schools within the participating area will be sent a summary of the findings.
7. I understand that this research study has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher named above is responsible for the ethical conduct of this research.
8. I have read and understand the explanation provided to me. I have had all my questions answered to my satisfaction, and I voluntarily agree to participate in this study.

By completing and submitting my responses, I assert informed consent.

Appendix D: Information Sheet - School

Capacity to Enable Physical Activity at Secondary School

INFORMATION SHEET - SCHOOL

The researcher for this study is Lizzy Horlock as part of the Master of the Arts (psychology) programme through Massey University and I am supported and supervised by Professor Sarah Riley (School of Psychology, Massey University). Following on from project work completed through the New Zealand Olympic Women in Sport Leadership Academy, and alongside my passion for the wellbeing of our young people, this current research will explore what helps and limits staff to enable physical activity for their students. Schools in the Bay of Plenty New Zealand are being asked to participate since they reflect both the national physical activity levels as well as capture the differences of school characteristics seen across the country.

I am interested in understanding what challenges are faced within the school space in relation to the physical activity levels of students. To do this, my study takes a capabilities approach which looks at how staff's capabilities to do something are enabled and limited by the context they are in. For this study, the context is made of the relationships, school culture and the physical environment. I would like to distribute a questionnaire made up of rating scales and open-ended questions asking school staff about capabilities, for example, capabilities enabled by time, the physical environment and relationships.

This project is seeking insight into school staff's perspective of the situation surrounding the activity levels of students at secondary school to help identify the opportunities to develop physically active cultures within schools; to provide insight into policy development and engagement with policy; and most importantly, to contribute towards improving the outcomes for our young people.

All secondary schools across the Bay of Plenty area are being contacted via school administration contacts found on the Education Counts website. We are asking your school to support this research by providing the opportunity for your staff to participate in this study, seeking as many staff responses from all BOP secondary schools in the hopes of getting an in-depth understanding. To do this, we ask if you would share details of this study and the link to the questionnaire, which will be sent out before the April school holidays.

Please take your time to read this information sheet and the example questions so that you can decide if you would like your school to participate. If you agree to support this project, a participant information sheet will be provided to distribute school-wide and to encourage staff to lend their voice and insights to better understand physical activity in schools. Staff will not be required to complete this questionnaire on school site, rather the link will be accessible from anywhere with internet access. The online survey will require a proficient level of the English language.

Access to participation is enabled independent of the school and responses are confidential to ensure no conflict of interest and to uphold the anonymity of schools and of individuals. We will only ask staff to stipulate what area they are located, their role and the school's decile from amalgamated lists. All completed questionnaires are anonymously submitted. In processing the data from questionnaires, it will be ensured that no linkages can be made to the participants nor the individual schools. The questionnaires will be securely stored in such a way that only the researchers and the supervisor will be able to access them.

You are under no obligation to support this research and are grateful for your consideration. I thank you for your continued positive contribution toward the wellbeing of our young people.

If you have any questions about our study, either now or in the future, please feel free to contact the following Researcher in the School of Psychology, Massey University, Lizzy Horlock via email: lizzy.horlock.2@uni.massey.ac.nz or the supervisor Sarah Riley by emailing S.Riley@massey.ac.nz.

This project has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher(s) named above are responsible for the ethical conduct of this research. If you have any concerns about the conduct of this research that you wish to raise with someone other than the researcher(s), please contact Prof Craig Johnson, Director, Research Ethics, telephone 06 356 9099 x 85271, email humanethics@massey.ac.nz.

Appendix E: Information Sheet - Staff

Capacity to Enable Physical Activity at Secondary School

INFORMATION SHEET - STAFF

The researcher for this study is Lizzy Horlock as part of the Master of the Arts (psychology) programme through Massey University and I am supported and supervised by Professor Sarah Riley (School of Psychology, Massey University). Following on from recent project work completed through the New Zealand Olympic Women in Sport Leadership Academy, and alongside my passion for the wellbeing of our young people, this current research will explore what agency or opportunities exist for you to enable physical activity within a school system. Schools in the Bay of Plenty New Zealand are being asked to participate since they reflect both the national physical activity levels as well as capture the differences of school characteristics seen across the country.

This project looks to understand the situation surrounding the activity levels of students to help identify the opportunities to develop physically active cultures within schools; to provide insight into policy development and engagement with policy; and most importantly, to contribute towards improving the outcomes for our young people. To do this, my study takes a capabilities approach which looks at how staff's capabilities to do something are enabled and limited by the context they are in. For this study, the context is made of the relationships, school culture and the physical environment.

We are seeking your assistance through your participation in this study, to complete a questionnaire made up of rating scales and open-ended questions asking school staff about capabilities, for example, capabilities enabled by time, the physical environment and relationships. We encourage as many individual responses as possible in order to capture useful insights and to better understand physical activity in schools. Please read this information sheet carefully before deciding whether or not to participate. If you decide to participate, we thank you in advance. If you decide not to take part, there will be no disadvantage to you and we appreciate you considering our request.

What Will Participants be Asked to Do? You will be asked to complete a questionnaire about what you/staff think about physical activity in/around your school. Specifically, your view and experiences of how you are supported to enable physical activity at school. Should you agree to take part in this study, data will be collected via this online questionnaire, requiring a proficient level of the English language. The questionnaire is made up of tick boxes and open-ended questions, taking between 15 to 30 minutes to complete, depending on the detail of the responses you want to provide. We encourage as many detailed responses as possible to ensure insightful, exploratory data is collected. The researcher will send out an executive summary to all schools.

What Data or Information will be Collected and What Use will be Made of it? Access to the questionnaire and all responses are confidential and accessible independent of the school to ensure no conflict of interest and to uphold

the anonymity of schools and of individuals. All completed questionnaires are anonymously submitted. In processing the data from questionnaires, it will be ensured that no linkages can be made to the participants nor the individual schools. The questionnaires will be securely stored in such a way that only the researchers and the supervisor will be able to access them.

What are my Rights as a Participant? You are under no obligation to accept this invitation. You have a right to decide where the data collection takes place (choosing where to complete the online survey through an online link). You have the right to decline to answer any particular question or withdraw during the questionnaire process, however through the completion of the questionnaire, you forfeit your right to withdraw thereafter as questionnaires are anonymously sent.

I acknowledge and express gratitude for your time and contribution to this research, findings will be treated with the utmost respect and in the best interest of improving the outcomes of our young people.

Participate now by clicking on the live link within the email, and/or copy and paste this link below into your browser: https://forms.gle/sHxVsfMxrBNnnX2S6

If you have any questions about our study, either now or in the future, please feel free to contact the following Researcher in the School of Psychology, Massey University, Lizzy Horlock via email: lizzy.horlock.2@uni.massey.ac.nz or the supervisor Sarah Riley by emailing S.Riley@massey.ac.nz.

This project has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher(s) named above are responsible for the ethical conduct of this research. If you have any concerns about the conduct of this research that you wish to raise with someone other than the researcher(s), please contact Prof Craig Johnson, Director, Research Ethics, telephone 06 356 9099 x 85271, email humanethics@massey.ac.nz.

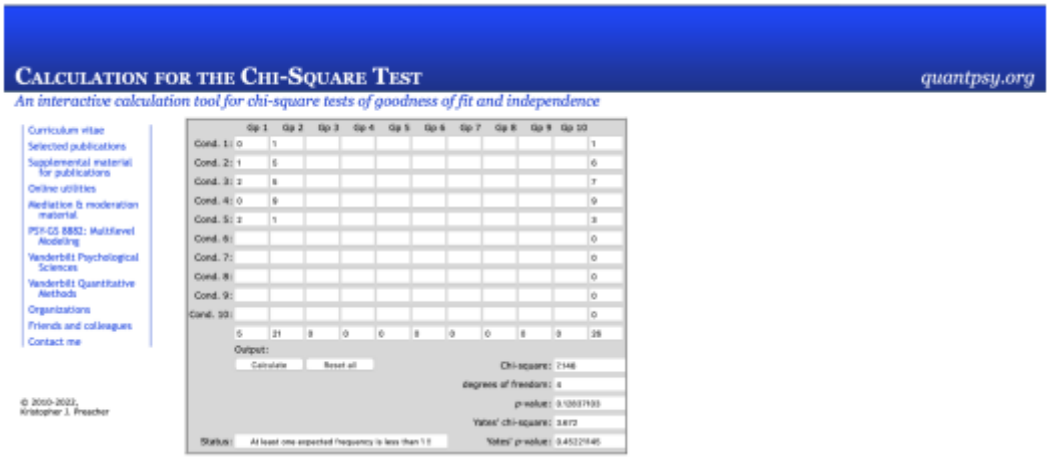
Appendix F: Chi Square Statistics

A website utility was used to calculate the chi square statistics and a brief introduction to chi-square tests of independence and goodness-of-fit was provided (Preacher, 2001). These tests were relevant to the current project as a way to detect group differences using frequency (count) data. The webpage utility provided an interactive tool to conduct chi-square tests.

In response to the distribution of ratings presented previously, three key questions were explored through chi squares tests of independence: Are rural staff significantly different in support staff scores, compared to the urban? Are urban environment scores different compared to rural? Are low decile environment scores different compared to medium decile schools? The null hypothesis is that capability ratings are not associated with location or decile variables, the alternative hypotheses were that decile and/or location effects capability. Here the significance level of 0.05 indicates a 5% risk of concluding that an association between the variables exists when there is no actual association. Therefore, when considering the capability of schools to support staff, we failed to reject our hypothesis that a school's location (urban, rural) was not associated with experiences of support capability (Chi square 7.14, df4, p value 0.12, Yates's chi square 3.67, yates p value 0.45), noting that p values more than 0.05 means it is not statistically significant. Furthermore, the distinctions between rural and urban schools experiencing support from their schools for staff to enable students to be active, may be due to chance as the statistical test did not result in significant results. We also failed to reject our hypothesis that a school's decile (low, medium: Chi square 0.96, df4, p value 0.91, Yates's chi square 1.09, yates p value 0.89) or location (urban, rural: Chi square 4.59, df4, p value 0.33, Yates's chi square 1.61, yates p value 0.80) were not associated with higher environmental capability. The rural/urban and decile distinctions did not lead to significantly different responses, for this sample.

Figure 18

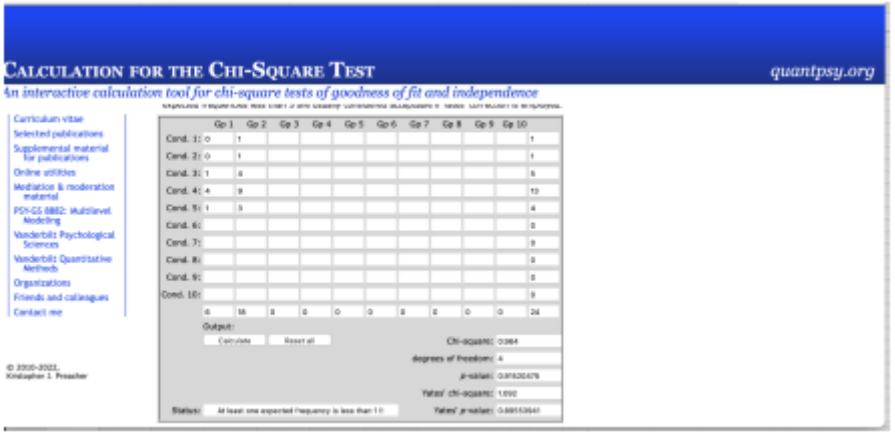
Chi Square Test - Support of Staff and Location



Note: The figure illustrates the statistical chi square equation for support of staff ratings, urban versus rural (gp1=rural, gp2=urban). The Chi-Square test was used to measure the difference in capability scores for rural and urban location groups for the ratings category of 'capability of school to support staff'.

Figure 19

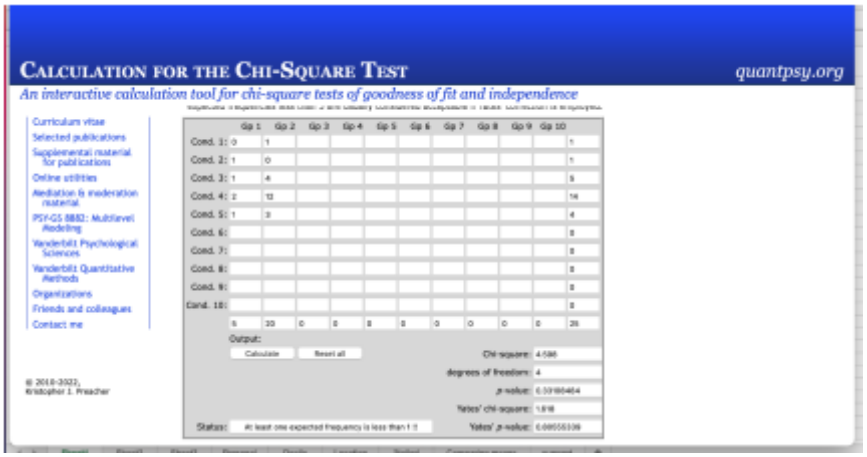
Chi Square Test – Environment and Decile Ratings



Note: The figure illustrates the statistical chi square equation for ratings of the environment, low decile versus medium (gp1=low, gp2=medium). The Chi-Square test was used to measure the difference in capability scores for low and medium decile groups for the ratings category of 'capability of environment'.

Figure 20

Chi Square Test – Environment and Location



Note: The figure illustrates the statistical chi square equation for ratings of environment, urban versus rural (gp1=rural, gp2=urban). The Chi-Square test was used to measure the difference in capability scores for rural and urban location groups for the ratings category of ‘capability of environment’.

Appendix G: T-Test Statistics

A web site offering free resources for students and researchers working with statistics in the social sciences was used to calculate these statistics. The output of the calculators and tools featured on this website have been audited for accuracy against the output produced by a number of established statistics packages, including SPSS and Minitab. Retrieved from: https://www.socscistatistics.com/tests/studentttest/default2.aspx

The T-Test was used to measure the difference in capability scores for location and decile groups across all or some of the five categories (environment, school as an organisation, support of staff, personal and school overall). The t-test was used to consider whether there was a significant difference in staff's total capability based on their school's decile (low versus medium) or location (rural versus urban) and whether there are significant differences in personal capability between urban and rural staff. Across all rating categories, five low decile respondents rated their total capability (*Mean* = 19; *SD* = 10.4) compared to the 19 medium decile respondents' total capability (*Mean* = 17.89; *SD* = 16.54), there was no significant effect for decile rating (t (23) = 0.60; p = .27). Across all categories, five rural respondents rated their total capability (*Mean* = 17.8; *SD* = 22.7) compared to the 21 urban respondents' total capability (*Mean* = 18.29; *SD* = 13.21), there was no significant effect for location (t (24) = -.25; p = .40). The same five rural respondents also rated their personal capability (*Mean* = 3.4; *SD* = 3.8) compared to the 21 urban respondent's personal capability (*Mean* = 4.14; *SD* = 0.43), there was no significant effect for location on personal capability (t (24) = -1.5; p = .07).

Rating Categories and Decile Groups

The statistical t-test equation was used to measure the difference in total capability scores for low and medium decile groups across the five categories (environment, school as an organisation, support of staff, personal and school overall).

Treatment 1 (low decile, all categories)

N_1: 6

$df_1 = N - 1 = 6 - 1 = 5$

M_1: 19

SS_1: 52

$s^2_1 = SS_1/(N - 1) = 52/(6-1) = 10.4$

Treatment 2 (medium decile, all categories)

N_2: 19

$df_2 = N - 1 = 19 - 1 = 18$

M_2: 17.89

SS_2: 297.79

$s^2_2 = SS_2/(N - 1) = 297.79/(19-1) = 16.54$

T-value Calculation

$s^2_p = ((df_1/(df_1 + df_2)) * s^2_1) + ((df_2/(df_2 + df_2)) * s^2_2) = ((5/23) * 10.4) + ((18/23) * 16.54) = 15.21$

$s^2_{M1} = s^2_p/N_1 = 15.21/6 = 2.53$

$s^2_{M2} = s^2_p/N_2 = 15.21/19 = 0.8$

$t = (M_1 - M_2)/\sqrt{(s^2_{M1} + s^2_{M2})} = 1.11/\sqrt{3.34} = 0.61$

The t-value is 0.60521. The p-value is .275481. The result is not significant at $p < .05$.

Rating Categories and Location Groups

The statistical t-test equation was used to measure the difference in total capability scores for urban and rural location groups across the five categories (environment, school as an organisation, support of staff, personal and school overall).

Treatment 1 (rural, all rating categories)

N_1: 5

$df_1 = N - 1 = 5 - 1 = 4$

M_1: 17.8

SS_1: 90.8

$s^2_1 = SS_1/(N - 1) = 90.8/(5-1) = 22.7$

Treatment 2 (urban, all rating categories)

N_2: 21

$df_2 = N - 1 = 21 - 1 = 20$

M_2: 18.29

SS_2: 264.29

$s^2_2 = SS_2/(N - 1) = 264.29/(21-1) = 13.21$

T-value Calculation

$s^2_p = ((df_1/(df_1 + df_2)) * s^2_1) + ((df_2/(df_2 + df_2)) * s^2_2) = ((4/24) * 22.7) + ((20/24) * 13.21) = 14.8$

$s^2_{M1} = s^2_p/N_1 = 14.8/5 = 2.96$

$s^2_{M2} = s^2_p/N_2 = 14.8/21 = 0.7$

$t = (M_1 - M_2)/\sqrt{(s^2_{M1} + s^2_{M2})} = -0.49/\sqrt{3.66} = -0.25$

The t-value is -0.25376. The p-value is .40092. The result is not significant at $p < .05$.

Personal Capability & Location

The statistical t-test equation was used to measure the difference in personal capability scores for urban and rural location groups.

Treatment 1 (rural, personal capability)	*Treatment 2 (urban, personal capability)*
N_1: 5	N_2: 21
$df_1 = N - 1 = 5 - 1 = 4$	$df_2 = N - 1 = 21 - 1 = 20$
M_1: 3.4	M_2: 4.14
SS_1: 15.2	SS_2: 8.57
$s^2_1 = SS_1/(N - 1) = 15.2/(5-1) = 3.8$	$s^2_2 = SS_2/(N - 1) = 8.57/(21-1) = 0.43$

T-value Calculation

$s^2_p = ((df_1/(df_1 + df_2)) * s^2_1) + ((df_2/(df_2 + df_2)) * s^2_2) = ((4/24) * 3.8) + ((20/24) * 0.43) = 0.99$

$s^2_{M1} = s^2_p/N_1 = 0.99/5 = 0.2$

$s^2_{M2} = s^2_p/N_2 = 0.99/21 = 0.05$

$t = (M_1 - M_2)/\sqrt{(s^2_{M1} + s^2_{M2})} = -0.74/\sqrt{0.25} = -1.5$

The t-value is -1.5. The p-value is .073328. The result is not significant at $p < .05$.

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Table 2

Participant List (decile, location, role)

Response Number	School Decile Rating	School Location	Role/job at the School
1	Decile 4, 5, 6 or 7	Urban	Senior/Executive Leadership Team
2	Decile 1, 2 or 3	Rural	Head of Faculty/ Department, Dean, Other leadership role
3	Decile 1, 2 or 3	Rural	Senior/Executive Leadership Team
4	Decile 1, 2 or 3	Urban	Head of Faculty/ Department, Dean, Other leadership role
5	Decile 1, 2 or 3	Urban	Teaching Staff, Teacher/Learner Support
6	Decile 8, 9, 10	Urban	Senior/Executive Leadership Team
7	Decile 4, 5, 6 or 7	Urban	Senior/Executive Leadership Team
8	Decile 1, 2 or 3	Rural	Senior/Executive Leadership Team
9		Urban	Administration, Non-Teaching Support Staff
10	Decile 4, 5, 6 or 7	Urban	Teaching Staff, Teacher/Learner Support
11	Decile 4, 5, 6 or 7	Urban	Teaching Staff, Teacher/Learner Support
12	Decile 4, 5, 6 or 7	Rural	
13	Decile 4, 5, 6 or 7	Urban	Teaching Staff, Teacher/Learner Support
14	Decile 4, 5, 6 or 7	Urban	Teaching Staff, Teacher/Learner Support
15	Decile 4, 5, 6 or 7	Urban	Head of Faculty/ Department, Dean, Other leadership role
16	Decile 4, 5, 6 or 7	Urban	Teaching Staff, Teacher/Learner Support
17	Decile 4, 5, 6 or 7	Rural	Head of Faculty/ Department, Dean, Other leadership role
18	Decile 1, 2 or 3	Urban	Teaching Staff, Teacher/Learner Support
19	Decile 4, 5, 6 or 7	Urban	Teaching Staff, Teacher/Learner Support
20	Decile 4, 5, 6 or 7	Urban	Senior/Executive Leadership Team
21	Decile 4, 5, 6 or 7	Urban	Teaching Staff, Teacher/Learner Support
22	Decile 4, 5, 6 or 7	Urban	Teaching Staff, Teacher/Learner Support
23	Decile 4, 5, 6 or 7	Urban	Senior/Executive Leadership Team
24	Decile 4, 5, 6 or 7	Urban	Teaching Staff, Teacher/Learner Support
25	Decile 4, 5, 6 or 7	Urban	Student wellbeing/ Counsellor/ Pastoral Care
26	Decile 4, 5, 6 or 7	Urban	Head of Faculty/ Department, Dean, Other leadership role
27	Decile 4, 5, 6 or 7	Urban	Administration, Non-Teaching Support Staff