GREEN LEADERSHIP IN THE CLASSROOM: INVESTIGATING TEACHERS' ENVIRONMENTAL LEADERSHIP, WELL-BEING, IMPRESSIONS OF NATURE, AND MOTIVATION TO TAKE STUDENTS OUTDOORS

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ABSTRACT

Green Leadership in the Classroom: Investigating Teachers' Environmental Leadership, Well-Being, Impressions of Nature, and Motivation to take Students Outdoors

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Concerns about climate change means that there is an urgent need to understand teachers' role in educating students about environmental issues and sustainability. However, little is known about teachers' environmental leadership and how that affects their competencies in the classroom, their general well-being and connections with nature, or what kinds of personality characteristics shape these teachers. A sample of current, future, and past Canadian teachers (N = 260) completed an online survey which included quantitative and qualitative questionnaires. Correlational and regression analyses determined teachers who possess environmental leadership qualities have a greater connection with nature, more positive well-being, and are more confident in their abilities to teach students outdoors. Furthermore, positive personality traits predict teachers' environmental leadership. Qualitative data revealed both structural and psychological barriers reduced the likelihood of teachers taking students outdoors and that greater support, resources and training are needed to enable teachers to implement more nature-based learning.

Keywords: environmental leadership, teachers, nature relatedness, well-being, personality, competence, outdoors

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Increasing concerns about climate change have motivated many individuals to adopt sustainability practices and teach environmental stewardship to others (Kaplan, 2001; Schultz, 2000). Specifically, there has been an overwhelming push for environmental education to be taught to young children in schools (Gill, 2014; Higgins & Nicol, 2013; Kuo et al., 2019; Malone, 2008; Mannion et al., 2015; Palmer & Suggate, 1996; Pretty et al., 2009; Scrutton, 2015). During childhood, developing a connection with nature is crucial for fostering environmental care and concern that is likely to extend into adulthood (Chawla, 1998; Wells & Lekies, 2006). As a result, this places great responsibility upon teachers to be environmental leaders. Teachers are known to be effective communicators, positive role models and possess influential characteristics and skills, which facilitate student growth (Aksland & Rundgren, 2020; Barrable & Lakin, 2020; Sahin & Alici, 2019). These behaviours, coupled with an emphasis on environmental sustainability, are consistent with a type of positive leadership that has emerged from the organizational psychology literature (Burns, 1978), namely, environmental transformational leadership (Robertson & Barling, 2013). For the purposes of this thesis, the term environmental transformational leadership will be referred to simply as environmental leadership. Environmental leaders are known to be effective when influencing organizational, individual, and sustainable outcomes in the workplace (Barling, 2014a; Kelloway et al., 2012; Robertson & Barling, 2013). Although, much of the leadership research has been applied to conventional leaders, such as managers and

supervisors, research has yet to examine if and how the environmental leadership framework applies to the role of a teacher and what its effects are.

Few studies have examined teachers' beliefs and attitudes about taking their students outdoors for educational purposes and how this might influence their teaching practices (Chakravarthi, 2009). Teachers may view the outdoors as a secondary purpose to learning, which primarily occurs indoors (Dighe, 1993; Henniger, 1994). Research also suggests that what motivates teachers to take their students outdoors is complex because of the various barriers and available resources (Ernst & Tornabene, 2012; Simmons, 1998). However, there are numerous benefits to taking students outdoors, including physical movement (Davies, 1996), improved developmental (Isenberg & Quisenberry, 2002), cognitive, and social skills (Henniger, 1994; Pellegrini & Smith, 1998), and greater self-esteem (Gill, 2014), mental health and emotion regulation (Korpela et al., 2002). Learning in a controlled outdoor environment is also constructive to building a relationship with nature, which is key to fostering environmental sustainability (Palmer & Suggate, 1996). It would be useful to investigate teachers' perceived ability to take students outdoors and share with them environmental teachings.

Furthermore, little is known about the role of nature relatedness (individual differences in connection with the natural world; Nisbet et al., 2009) as a potential motivator for teachers acting as environmental leaders. Nature relatedness is a strong predictor of environmental protection (Zelenski & Nisbet, 2014) and environmental concern among individuals (Nisbet et al., 2009; Schultz, 2000; Schultz, 2001) and has also been linked with pro-environmental attitudes and behaviours (Nisbet et al., 2009). When applying this concept to teachers, it is the best predictor of their environmental

behaviours, actions, and practices with students (Ernst & Tornabene, 2012). Thus, nature connectedness has the potential to motivate teachers to share their environmental values and beliefs, model sustainability, and provide positive outdoor learning experiences for their students (Barrable & Arvanitis, 2019). Thus, it is also worth investigating how nature relatedness may play a role in teachers' environmental leadership with their students.

Leadership in the Workplace

Decades of empirical research have contributed to a better understanding of conventional leadership and its many forms (e.g., transformational, transactional, charismatic, avoidant), as well as how and in what way leaders influence their employees in a traditional workplace setting (Barling, 2014a; Luthans et al., 2004). It is also important for leaders to address their subordinate's personal well-being and self-worth, as well as their commitment and involvement with the organization to facilitate organizational performance and effectiveness (Barling, 2014a; Barling, 2014b; Bass & Riggio, 2006; Kelloway et al., 2013; Youssef-Morgan & Luthans, 2013). The most studied and recognized type of positive leadership that has concern for organizational outcomes and for their employee's development and well-being is known as transformational leadership (Bass, 1999; Bass & Riggio, 2006; Burns, 1978). To comprehensively understand this type of leadership, researchers have proposed the idea of examining transformational leadership as it pertains to specific areas of interest (Barling et al., 2002; Robertson & Barling, 2015). Given the ongoing concern of climate change and organizations' significant contributions (Trudeau and Canada West Foundation, 2007), organizational psychologists have suggested leaders cultivate a

workplace that foster pro-environmental behaviours and aim for long-term sustainability. This specific type of transformational leadership is called environmental leadership (Robertson & Barling, 2013).

Environmental Leadership

Environmental leadership is defined by Robertson & Barling (2013) as "a manifestation of transformational leadership in which the content of the leadership behaviours are all focused on encouraging pro-environmental initiatives" (p. 177). In other words, these leaders embody positive behavioural characteristics and elicit positive behavioural outcomes from others (Barling, 2014a; Bass & Avolio, 1994), while emphasizing pro-environmental performance within an organization (Kelloway et al., 2012; Robertson & Barling, 2013). Similar to transformational leaders, environmental leaders exemplify four commonly held behaviours, known as the four I's: idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration (Bass, 1985; Kelloway et al., 2013; Robertson & Barling, 2013).

An environmental leader exemplifies *idealized influence* when they act as role models in terms of organizational achievement and environmental stewardship. For example, these leaders may focus on efficiency and productivity in the workplace but not at the expense of the environment. Furthermore, they may encourage the use of electronic files instead of hard copies and may promote the act of proper recycling (Robertson & Barling, 2017). Additionally, an environmental leader will choose to do what is ethical and go beyond self-interest in doing so. This moral commitment allows environmental leaders to keep in mind the greater good of the company, their followers (Bass & Avolio,

1994), and the sustainability of the environment (Kelloway et al., 2012; Robertson & Barling, 2013).

Environmental leaders exemplify *inspirational motivation* by encouraging and challenging their followers to go beyond their comfort level and to engage in behaviours that are beneficial for the collective good of the organization and the environment (Kelloway et al., 2012). These leaders support their followers when partaking in environmentally conscious behaviours, such as attending specialized environmental training sessions, reporting sources of pollution, and contributing monetarily to carbon emission compensation programs (Yuriev et al., 2020). Environmental leaders also encourage their followers to use positivity, optimism, and passion to overcome psychological setbacks, which may help improve workplace performance (Robertson & Barling, 2017; Wang et al., 2011).

Intellectual stimulation is portrayed when environmental leaders challenge their followers' perspectives about their workplace performance and environmental behaviours (Robertson & Barling, 2017). For example, environmental leaders may facilitate brainstorming sessions with their subordinates to create solutions for prioritizing environmental sustainability in the workplace. This creates a space for their followers to question their long-held assumptions of environmental practices in the workplace and in their daily lives (Bass & Avolio, 1994; Kelloway et al., 2012; Robertson & Barling, 2013).

Lastly, *individualized consideration* is exemplified when environmental leaders are conscientious about their followers' workplace performance, personal development, and overall well-being (Kelloway et al., 2012). These leaders like to build close

relationships with others in which they can share their environmental values, ideations, and practices (Robertson & Barling, 2017). An environmental leader exemplifies individualized consideration when they praise and support employees who engage in behaviours that are in accordance with the environment and the organization harmoniously.

Based on a review of the literature, two additional behaviours have been proposed to measure transformational leadership, which can further be applied to environmental leadership: providing an appropriate model and fostering the acceptance of group goals (Podsakoff et al., 1990). A transformational leader *provides an appropriate model* when they are portraying exemplary behaviours that are consistent with the organization's values (Podsakoff et al., 1990). Environmental leaders may exemplify this behaviour when engaging in various pro-environmental behaviours while in the workplace to influence their subordinates to engage in similar environmentally friendly behaviours. Transformational leaders *foster the acceptance of group goals* when facilitating cooperation and cohesion among their followers as they work towards a common organizational goal (Podsakoff et al., 1990). Environmental leaders may portray this behaviour when they remind and encourage their followers of the common goal to act sustainably while completing organizational tasks.

There is a great deal of research which supports a multidimensional approach to measuring transformational leadership (Avolio & Bass, 1988; Bass, 1985; Bradford & Cohen, 1984; Podsakoff et al., 1990); thus, the same approach can be applied when considering these six behaviours (i.e., idealized influence, inspirational motivation, intellectual stimulation, individualized consideration, providing an appropriate model,

and fostering the acceptance of group goals) in environmental leaders. Although it is argued that each of these leadership behaviours can contribute to a positive workplace culture that fosters sustainability (Robertson & Barling, 2013), they may also help to facilitate a greater well-being among the leader themselves (Arnold et al., 2007; Mencl et al., 2016; Nielsen et al., 2008; Sivanathan et al., 2004).

Environmental Leadership and Well-Being

Recent research has focused on studying the relationship between transformational leaders and their influence on their employees' overall well-being (Kelloway et al., 2012). Well-being can be classified into two distinct types: hedonic and eudemonic well-being. Hedonic well-being refers to the feelings and evaluations of one's own life, or how individuals appraise their happiness and satisfaction with life (Ryan & Deci, 2001). Hedonic well-being is also known as subjective well-being, which encompasses the assessments that measure positive and negative affect, happiness, and life satisfaction (Diener, 1984). Eudemonic well-being, also known as psychological well-being, refers to an individual's process of achieving self-actualization, while trying to make sense of their personal meaning in life (Bauer & McAdams, 2010; Ryan & Deci, 2001; Ryff & Singer, 1998).

Employee well-being in the workplace can be accomplished by individual effort but it also stems from the leader who promotes a positive work environment (Kossek et al., 2012). Exemplifying the commonly held behaviours of transformational leadership (i.e., *4 I's*, providing an appropriate model, and fostering the acceptance of group goals), these leaders cultivate work conditions that foster employee growth (Kelloway et al., 2012). Employees may then feel motivated and supported to discover their full potential,

which contributes to achieving a positive overall well-being (Barling, 2014a; Bass & Avolio, 1994). Additionally, transformational leaders produce greater self-efficacy (Liu et al., 2010; Nielsen et al., 2009; Nielsen & Munir, 2009), and motivation among their employees (Fernet et al., 2015), while contributing to lower levels of stress (Turner et al., 2002). Thus, transformational leaders promote a supportive work environment (Nielsen & Daniels, 2012), which helps their employees to achieve meaningful work (Arnold et al., 2007; Nielsen & Daniels, 2012; Nielsen et al., 2008; Nielsen et al., 2009; Perko et al., 2014).

Although much of the research in this area has focused on how transformational leaders benefit their employees' well-being, research has yet to examine the leaders' well-being. Furthermore, research has not yet studied environmental leadership and its impacts on the well-being of others or the leaders themselves. However, research supports the fact that individuals who appraise work as more satisfying and commonly experience a greater level of positive emotions than negative emotions, tend to possess a positive subjective well-being (Vakkayil et al., 2017). To further support the notion of positive appraisals at work, maintaining positive well-being at work can help combat mental fatigue and deterioration, therefore acting as a psychological buffer (Skakon et al., 2010). The existing research suggests that environmental leaders are likely to have positive well-being, similar to that of their employees, but research is needed to explore the characteristics and potential benefits of being an environmental leader.

Environmental Leaders and Pro-Environmental Behaviours

Environmental leaders matter greatly in the context of organizational sustainability, as they are the key promoters of pro-environmental behaviours (Robertson

& Barling, 2017). Pro-environmental behaviours are known as the actions taken by individuals that are associated with, and contribute to environmental sustainability (Ones & Dilchert, 2012). These behaviours are also referred to as, eco-initiatives (Ramus & Killmer, 2007; Ramus & Steger, 2000), green behaviours (Kura, 2016), and environmentally responsible behaviours (Lee et al., 2013) among others. To encourage others to partake in pro-environmental behaviours, environmental leaders will use their close relationships to educate and motivate those around them to value sustainability (Robertson & Barling, 2013). At the same time, these leaders will use their positive influence to make pro-environmental behaviours look attractive, which past research has shown to be a highly effective way to engage people in such behaviours (Robertson & Barling, 2015). Through exposure and practice, individuals may find themselves repeating pro-environmental behaviours over time (Robertson & Barling, 2015, 2017).

As pro-environmental behaviours become more persistent and established within the workplace, the negative effects organizations have on advancing climate change could diminish (Robertson & Barling, 2015; Trudeau and Canada West Foundation, 2007). Furthermore, the advantages of engaging in pro-environmental behaviours are plentiful; not only to the organization but also to the individual (Robertson & Barling, 2015). On an organizational level, they add a competitive advantage as employees are expanding their skillset to include environmentally conscious decisions (Darnall & Edwards, 2006; Hart, 1995; Robertson & Barling, 2015; Rothenberg, 2003). On an individual level, engaging in pro-environmental behaviours may increase feelings of pride, happiness, and satisfaction (Corral & Domínguez, 2011), which suggests that being environmentally conscious leads to positive psychological states (Vanegas-Rico et al.,

2018; Venhoeven et al., 2013). Thus, it is important to understand the different facets of environmental leaders and how this is associated with well-being.

Teachers as Environmental Leaders

Some research suggests that all individuals have the capabilities to become a leader as these qualities are fundamental dimensions of what is it to be human. For example, having a vision allows humans to imagine a better world, while their actions will help in achieving the changes needed to reach that ideal world (Frost, 2003). In the last two decades, teacher leadership has come to the forefront of the educational literature (Little, 2003). An all-encompassing definition of teacher leadership was proposed by Katzenmeyer and Moller (2001) when they stated that teachers have an impact inside and outside the classroom and can influence their peers and those they mentor towards improved educational practices. This is reflected in the current view on teacher leadership as it focuses on teachers' leadership qualities, duties, characteristics, and attitudes (Pounder, 2006). Teachers who exemplify leadership qualities are known to positively contribute to the schools' atmosphere, translate the principals' vision to the classroom (Day & Harris, 2002), and professionally engage their colleagues in ways that will enhance the educational process (York-Barr & Duke, 2004). Additionally, the modern-day teacher is not only an instructor, but is seen as a caregiver, providing social and emotional support to their students (Eccles et al., 1993), which is more likely to enable positive student outcomes (Hughes et al., 2008; O'Connor & McCartney, 2007; Pianta, 1994). These behaviours are similar to the characteristics exemplified by transformational leaders, which can be applied in an environmental leadership context. Therefore, it is important to understand more about what makes a teacher an environmental leader and

how these leadership characteristics are used when educating their students about environmental topics (Avolio & Luthans, 2006; Brown et al., 2005; Lorenzi, 2004). To help accomplish this, an examination of teachers' personality, behaviours, and attitudes is beneficial.

Teachers' Environmental Leadership and Personality Traits

The personality traits of openness, conscientiousness, extraversion, agreeableness, & neuroticism (often referred to as the 'big five'; John & Shrivastava, 1999) are core predictors of environmental behaviour as they are cross-culturally reliable, valid across time (McCrae & Costa, 1997), and are foundational for the shaping of values, behaviours, and attitudes (Brick & Lewis, 2016). Research has examined how these personality traits apply to transformational leaders (Bono & Judge, 2004; Hogan & Ones, 1997), yet little is understood about how they may pertain to individuals' environmentally friendly behaviours (Brick & Lewis, 2016). Based on the existing big five personality research, there is reason to believe these traits might affect teachers and their environmental leadership in the classroom. For example, *openness* represents an individuals' ability to be flexible, creative, and resourceful when imagining long-term solutions to environmental consequences. Openness also involves a component of challenging the status quo, which means rejecting the idea of damaging the environment, which requires alternative thinking and intellect (Brick & Lewis, 2016). Openness is also associated with environmental intentions and goals (Hilbig et al., 2012; Hirsh & Dolderman, 2007; Markowitz et al., 2012). *Agreeableness* is also closely linked with environmental behaviours as a strong predictor of environmental concern (Sibley, 2011) and environmental goals (Hirsh & Dolderman, 2007). Agreeableness, in the sense of

environmentalism, reflects the motivation to achieve social harmony and cooperation while achieving pro-environmental behaviours. It also recognizes the element of empathetic concern for the environment, which is a driving force for being agreeable (Brick & Lewis, 2016).

Environmental leadership links with the other big five personality traits (i.e., extraversion, conscientiousness, and neuroticism) are more mixed. *Extraversion* is closely related to effective transformational leadership as these individuals are energetic, optimistic, and active (Brick & Lewis, 2016; Costa & McCrae, 1992); however, it is only moderately associated with environmental behaviours and goals (Hilbig et al., 2012; Hirsh & Dolderman, 2007; Markowitz et al., 2012). *Conscientiousness* refers to the hard-work, enthusiasm, and vision when working towards an environmental goal (Costa & McCrae, 1992; Hogan & Ones, 1997). Past research suggests that this trait does not strongly predict environmental behaviours. For example, there is little effect of conscientiousness on self-reported environmental behaviour (Markowitz et al., 2012) and environmental concern (Hirsh, 2010). However, other studies suggest a moderate association between conscientiousness and conservation behaviours (Hilbig et al., 2012; Milfont & Sibley, 2012). Lastly *neuroticism*, otherwise known as emotional instability, refers to seeing the world in a negative way and the tendency to experience more negative emotions such as fear, anger, or sadness (Bono & Judge, 2004; Costa & McCrae, 1992). As a result, neuroticism is associated with lower self-esteem and general self-efficacy (Judge et al., 2002). Therefore, people with less emotional stability are typically not seen as environmental role models or leaders and are usually too anxious to undertake change in themselves or with others (Bass, 1985). Furthermore, these types of

behaviours would influence environmental leaders to avoid their responsibilities and duties when it came to environmental sustainability (Bono & Judge, 2004). Overall, the evidence suggests that the big five personality traits are important to consider when examining teachers' environmental leadership.

Perceived Competence in Teaching Environmental Education

While certain personality traits are indicative of teachers' environmental leadership, their behaviours, attitudes, and beliefs towards teaching environmental content are also important to consider. Teachers' perceived competence to teach environmental education refers to the abilities, enthusiasm, and confidence to undertake the task of delivering such content to students (Barrable & Lakin, 2020; Niemiec & Ryan, 2009). This stems from a concept called professional competence which includes teachers' knowledge and beliefs of teaching and learning, while facing everyday challenges in the classroom (Baumert & Kunter, 2013). An important part of teachers' perceived competence is their self-efficacy – a judgement of one's teaching competencies and ability to bring about desired outcomes in students (Tschannen-Moran & Hoy, 2001). Greater efficacy in teachers will determine the amount of effort they invest in planning and organizing their lessons, as well as the goals they set out for themselves (Allinder, 1994; Tschannen-Moran & Hoy, 2001). A strong sense of efficacy among teachers will also determine their willingness to experiment with different methods of teaching to help students thrive while learning course content (Stein & Wang, 1988). These types of behaviours help to create a productive learning environment which provides benefits for students, such as greater academic achievement, motivation, and continued interest with course content (Ames, 1992; Ames & Archer, 1988; Kunter et al., 2013; Oldfather &

Dahl, 1994; Perry, 1998; Turner et al., 1998). These outcomes are important to acquire when teaching environmental education and may help to facilitate sustainable attitudes and behaviours within the students (Darkenwald & Gavin, 1987).

However, teachers tend to feel a diminished sense of self-efficacy when they are delivering content related to environmental education. Oftentimes teachers feel as though they lack the knowledge and skills to teach environmental content to students (Simmons, 1998). This lack of confidence is due in part to teachers' misconceptions and stereotypical beliefs about the environment (Palmer & Suggate, 1996), which can result in weakened teaching quality (Geijsel et al., 2009; Xanthropolou et al., 2007). A diminished efficacy in teachers may also affect student outcomes such as, achievement (Moore & Esselman, 1992; Ross, 1992), motivation (Midgley et al., 1989) and their own self-efficacy (Anderson et al., 1988). To increase teachers' sense of self-efficacy when teaching environmental education, support from the school's administration, principal, and fellow colleagues is important (Oude Grotte Beverborg et al., 2015), as it will help to strengthen teachers' persistence in attaining new goals (Bandura, 1997; Geijsel et al., 2009), while removing their fear of failure (Runhaar et al., 2010). For teachers to maintain a sense of competency while teaching environmental education they must stay in touch with their personal resources (e.g., energy, interest, and creativity) to increase their psychological stability, which will further benefit their time spent with students and when working through challenging course content (Tschannen-Moran and Hoy, 2001).

Motivations to Teach Environmental Education and Learning Outside

Environmental education has been a focus of the education system since the late 1960's (Ronen & Kerret, 2020). The initial objective of environmental education was to

promote care and concern for the environment, while sharing a commitment to solving environmental issues (Kopnina, 2014; Parra et al., 2020). To attain this objective, the focus was mainly on the well-being of the natural environment, while efforts to incorporate individuals' well-being was neglected (Dobson, 2007; Parra et al., 2020). However, contemporary research in the environmental education sector suggests that personal well-being is interconnected with the well-being of the natural environment (Kopnina, 2014; Parra et al., 2020). Therefore, the modern view of environmental education is to promote a connection with nature, which positively influences human well-being as well as environmental concern and pro-environmental behaviours (Barrable, 2019; Frantz & Mayer, 2014; Nisbet et al., 2009; Otto & Pensini, 2017; Schultz, 2000). One of the biggest challenges for teachers, to date, is fostering nature connectedness among children who are spending increasingly less time outdoors. The invasion of media and increasing urbanization are some of the reasons children are not going outside, and instead learning about nature online (Crim et al., 2008). Paradoxically, younger generations are the most adaptable to learning sustainable habits and are the most promising generation for change when it comes to the well-being of the natural world (Ronen & Kerret, 2020). Therefore, it is important to teach young students about the environment so they can develop environmental literacy (Crim et al., 2008), thus teachers have a leading role to play in this type of education.

There are many advantages to teaching environmental education to students, but there are also great benefits to learning in nature (Arbuthnott et al., 2014; Ernst & Theimer, 2011; Mace et al., 2012). Structured time outdoors can enhance learning experiences for children of all ages (Higgins & Nicol, 2013; Mannion et al., 2015; Pretty

et al., 2009), especially when students can play and experiment, ask questions and draw conclusions about different processes (Simmons, 1998). Some of the benefits students experience from time outdoors include increased physical activity (Brown et al., 2009; Henderson et al., 2015; Schlechter et al., 2017), and greater development of cognitive, emotional, social, and behavioural skills (Scrutton, 2015; Ulset et al., 2017). Furthermore, nature can increase attention, joy for learning, and self-discipline, while reducing stress among students (Kuo et al., 2019). Outdoor educational experiences will also allow students to bond with nature (Matteucci et al., 2017), which is important in shaping future preferences about the environment (Bogner, 1998). These findings suggest that an outdoor learning environment can enhance student growth and development (Valckx et al., 2020). However, research has yet to comprehensively examine what motivates educators to teach environmental content and take students outside. Individual differences in connectedness with nature may be one factor that influences teachers' motivation.

Nature Relatedness

Nature relatedness describes the strength of an individuals' cognitive, affective, and experiential connection with the natural environment, including an appreciation and understanding of the natural world (Nisbet et al., 2009). The concept of nature relatedness is unique from environmentalism as it goes beyond environmental actions and incorporates the understanding of one's interconnectedness with all living things including both the unpleasant (e.g., mosquitoes) and pleasing aspects of nature (e.g., sunsets). Nature relatedness is relatively stable over time and across situations, thus can be seen as "trait-like" (Nisbet et al., 2009; Nisbet et al., 2011). Nature relatedness can

also be considered as a multidimensional construct. The nature-related self reflects an individuals' adopted identification with nature and their thoughts, feelings, behaviours, and attitudes towards the environment. Nature-related perspective is represented by an individuals' view of the natural world and how they cognitively process the world around them. Finally, nature-related experience is the physical connection with the environment, which encompasses previous positive or negative encounters in nature (Nisbet et al., 2009).

There are many commonalities among individuals who are connected with nature, such that they show similar behaviours, attitudes, personality, and well-being characteristics compared to those who do not have a strong connection (Capaldi et al, 2014). For example, nature related people report greater feelings of energy and happiness, higher levels of cooperation, agreeableness, thoughtfulness, vitality, autonomy, personal growth and meaning in life (Nisbet et al., 2011; Nisbet & Zelenski, 2013), which are all key indicators of a positive overall well-being (Berman et al., 2008; Mayer & Frantz, 2004; Nisbet et al., 2009; Zelenski et al., 2015; Zelenski & Nisbet, 2014). Furthermore, individuals who strongly relate to nature choose to affiliate more with the environment in various ways, such as spending time in nature, taking part in environmental education, and even owning a pet (Berman et al., 2008; Mayer et al., 2009; Nisbet et al., 2009; Nisbet et al., 2011). A strong connection with nature also promotes environmental concern and pro-environmental behaviours (MacKay & Schmitt, 2019; Nisbet et al., 2009). For example, nature related individuals are more aware of their actions and impact on the natural world (Schultz, 2000), and are therefore more likely to engage in environmentally conscious behaviours (Nisbet et al., 2009; Sato et al., 2021).

They may also be more willing to support conservation groups, share their views on sustainability, and teach others environmental stewardship. Based on various findings from the research, nature relatedness may be a key concept to consider when examining the motivation for teachers to act as environmental leaders with their students.

Nature Connectedness and Teachers' Environmental Care and Concern

Contact with nature provides many positive outcomes for individuals' physical, psychological, and social well-being (Chawla, 2015; Frumkin, 2001; Nisbet et al., 2011; Ulrich, 1993). However, a connection with nature also benefits the natural environment as people are more likely to engage in pro-environmental behaviours (Nisbet et al., 2009; Otto & Pensini, 2017). Environmental concern is shaped by an individuals' attitudes about environmental issues which are rooted in a value system (Stern et al., 1993; Stern et al., 1995) This value system can be classified into three distinct types of concerns: social-altruistic (i.e., the value of the environment; weighing the cost and benefits), biospheric (i.e., the value for all living things), and egoistic (i.e., the value of the self over living things; Schultz, 2000; Stern & Dietz, 1994). Due to the formation of modern lifestyles and the advancement of technology there is an increasing disconnect between humans and the natural world (Louv, 2005; Nisbet & Zelenski, 2013; Soga & Gaston, 2016), which leads to decreased environmental care and concern (Nisbet et al., 2009; Nisbet & Zelenski, 2013).

Environmental education is one approach to promoting environmental care and concern and strengthening nature connectedness, environmental knowledge, and attitudes for people of all ages (Bogner, 1998; Dettmann-Easler & Pease, 1999; Ernst & Theimer, 2011; Leeming et al., 2010). Specifically for teachers, nature relatedness may provide

motivation to engage in outdoor activities with students (Ernst & Tornabene, 2012). This is supported by the fact that nature connectedness is associated with individuals' desire to spend more time outdoors, as well as their interest in natural processes (Nisbet et al., 2009; Otto & Pensini, 2017). Moreover, positive experiences that occur in nature are strongly associated with individuals' affective connection with the natural environment (Hinds & Sparks, 2008). Positive emotions towards nature will help to build altruistic and empathetic behaviours towards the natural world (Ernst & Theimer, 2011). Thus, teachers creating positive outdoor experiences are useful for fostering their student's as well as their own connection with nature (Barrable & Lakin, 2020). Furthermore, expanding one's sense of self to include nature will also help to build care and concern for the environment as any damage and destruction to nature is seen as damage to the self (Clayton, 2003; Conn, 1998; Nisbet et al, 2009). Therefore, environmental education, positive experiences in nature, and building an environmental identity all contribute to developing and maintaining environmental care and concern (Kals et al., 1999; Nisbet et al., 2009; Schultz, 2000). By applying these ideations to teachers, evidence suggests that maintaining a positive relationship with nature will not only encourage environmental leadership among teachers but will also motivate them to incorporate the outdoors and environmental education into their teaching practices.

Current Study

Thus far, to distinguish environmental leadership from transformational leadership, preliminary research has focused on the benefits it provides for the environment and how it effects employee outcomes demonstrated at work (Kura, 2016; Robertson & Barling, 2015; Robertson & Barling, 2017; Shrivastava, 1994). However,

researchers have suggested that to understand environmental leadership more comprehensively, future studies should examine the leader themselves, (i.e., well-being, personality characteristics, behaviours, and attitudes; Robertson & Barling, 2015). As environmental leaders tend to be positive, motivating and, zealous individuals (Barling, 2014a; Bass & Avolio, 1994; Kelloway et al., 2012; Ramus & Steger, 2000) these features may have similar positive effects on their own well-being and not just on others. Additionally, the environmental leadership framework would benefit from being applied to unconventional leadership positions. Therefore, the main goal of the current study is to gain a deeper understanding of the environmental leadership framework, while exploring the concept of nature relatedness as motivation for teachers acting as environmental leaders with their students. Furthermore, it aims to understand the various associations between environmental leadership and individual differences among teachers' personality, well-being, impressions of nature, and perceived competence to teach outdoors. The current study also explores teachers' perceived barriers and enablers for taking student outdoors. Quantitative and qualitative measures were administered in an online survey to allow a range of teachers at various career stages to provide their perspectives and insights. Six hypotheses were proposed.

Hypothesis 1: Teachers who possess environmental leadership qualities will have a stronger connection with nature.

Hypothesis 2: Teachers who possess environmental leadership qualities will report greater subjective well-being.

Hypothesis 3a: Teachers who possess environmental leadership qualities will report a greater perceived competence to teach outdoors.

Hypothesis 3b: Each dimension of environmental leadership (i.e., idealized influence, intellectual stimulation, individualized consideration, inspirational motivation, fostering the acceptance of group goals, and providing an appropriate model) will significantly contribute to teachers' perceived competence to teach outdoors.

Hypothesis 4a: The personality traits of openness, conscientiousness, extraversion, and agreeableness will be positively associated with teachers' environmental leadership qualities whereas neuroticism is expected to negatively correlate with teachers' environmental leadership qualities.

Hypothesis 4b: Some dimensions of personality (i.e., openness, conscientiousness, extraversion, agreeableness, and neuroticism) will uniquely explain the variance in teachers' environmental leadership (when controlling for all personality variables).

Hypothesis 5: Teachers' connection with nature will mediate the relationship between environmental leadership and perceived competence to teach outdoors.

Hypothesis 6: Structural and psychological themes will emerge from qualitative data to depict common barriers and enablers that teachers perceive when taking student outdoors, with and without the COVID-19 pandemic as a factor.

Method

Participants

Current and former teachers (of pre-school to grade 12) and teacher candidates were invited to participate in an anonymous online "Teacher Experiences" survey, administered through Trent University's Qualtrics system. The survey was advertised to public, catholic, and French school boards, independent/private schools, teacher unions,

various university's education faculties, and environmental organizations across Canada. The incentive for participation was the chance to enter a $200 cash prize draw, via a link external to the survey to retain anonymity.

A total of 358 individuals consented to participate. After data cleaning and identifying participants who did not meet the inclusion criteria (i.e., response sets, incomplete responses, and failed attention checks; n = 98), a total of 260 participants remained. The majority were female, Caucasian, and in their twenties. Participants mainly grew up in city suburbs and small towns, which is similar to where participants currently live. For complete demographic characteristics, see Table 1.

Many of the participants were teacher candidates (i.e., enrolled in teacher education programs or courses), while others were currently teaching, retired or a former teacher, or other. Participants were asked to indicate their teaching specialties/subjects (current or anticipated), and the responses ranged from sciences and math to music/instrumental studies, physical education, languages, arts and social sciences, special education, and Indigenous studies. Participants also identified the grade level(s) they taught or anticipate teaching, with the majority teaching elementary school (i.e., grades 1-6), high school (i.e., grades 9-12), and kindergarten. To understand participants' experiences with environmental education content, they were asked if they ever taught an environmental education course or class, where 92.3% said "no" (n = 240). As a follow up question, participants were asked if they ever incorporated environmental content into courses they taught, where 44.6% said "yes" (n = 116). Additionally, participants who were actively teaching indicated their work status (full time; n = 25, part time; n = 5, contract; n = 3, other; n = 1), the type of school they taught at (private/independent; n =

16, public; *n* = 10, catholic; *n* = 4, forest; *n* = 2, other; *n* = 1) and the school's setting (suburban; *n* = 22, urban (city centre); *n* = 5, rural; *n* = 5).

Table 1

Sample Demographic Characteristics (*N* = 260)

Characteristic	*M*	*SD*
Age	27.06	8.09
	Percentage (%)	*n*
Gender		
Female	78.8	205
Male	19.6	51
Gender-fluid	1.2	3
Prefer not to say	0.4	1
Ethnicity		
Caucasian	82.7	215
Multiple Ethnicities	3.5	9
South Asian	2.3	6
Indigenous	1.9	5
West Asian	1.5	4
Other	1.5	4
Arab	1.2	3
Black	1.2	3
Chinese	1.2	3
Filipino	0.8	2
Korean	0.8	2
Latin American	0.8	2
Prefer not to answer	0.8	2
Location Growing Up		
City Suburbs	51.5	134

Small Town	30.4	79
Rural or Farm	10.4	27
City Centre	5.0	13
Other	1.5	4
Exurban Area	1.2	3
Living Now		
City Suburbs	52.3	136
Small Town	24.6	64
City Centre	13.1	34
Rural or Farm	5.8	15
Campus Residence	3.5	9
Exurban Area	0.4	1
Other	0.4	1
Current Stage of Teaching Career		
Teacher Candidate	84.6	220
Current Teacher	12.3	32
Retired or Former Teacher	1.5	4
Other	1.5	4
Grades Taught		
Elementary School (1-6)	61.5	160
High School (9-12)	41.2	107
Kindergarten	35.4	92
Junior High School (7-8)	31.2	81
Pre-School	8.8	23

Materials

Demographics and Eco-Mentoring

Participants completed general background information about their sex, age, ethnicity, as well as what type of area they grew up in and where they currently live.

Participants also answered questions pertaining to their teaching occupation, such as their current stage of career, work status, school type, school setting, grades taught, teaching specialties, if they have taught an environmental education course or class, and if they have incorporated environmental content into their courses. See Appendix A for all study materials. Additional questions asked teacher candidate participants about their involvement in Trent University's School of Education Eco-Mentorship Certificate program. Participants were asked if they had or were planning to enroll in the program and, if so, what their motivation was for doing so.

The Environmental Leadership Scale

Participants' environmental leadership was captured by 19 items focusing on attitudes, behaviours, and qualities of environmental transformational leaders (α = .94). In addition to the general environmental leadership concept, six subscales captured idealized influence (α = .81), inspirational motivation (α = .51), intellectual stimulation (α = .70), individualized consideration (α = .74), fostering the acceptance of group goals (α = .90), and providing an appropriate model (α = .82). Twelve items were adapted from The *Environmentally Specific Transformational Leadership* scale (ETFL; Robertson, 2018), while seven items were adapted from The *Transformational Leadership Behaviour Inventory* (TLI; Podsakoff et al., 1990) to be self-report items measuring behavioural intention. Participants rated how often they engaged in each statement on a scale ranging from 1 (*never*) to 5 (*always*). An example item of idealized influence include: "I act an environmental role model". An example item that captures inspirational motivation is: "I motivate others (e.g., my students/peers/colleagues) to behave in an environmentally friendly manner". An example item that aims to measure intellectual

stimulation is: “I encourage others (e.g., my students/peers/colleagues) to think about environmental issues in different ways”. An example item measuring individualized consideration is: “I recognize others’ (e.g., my students/peers/colleagues) ability to engage in environmental practice”. An example item of fostering the acceptance of group goals is: “I encourage collaboration among others (e.g., my students/peers/colleagues) to work towards the sustainability of our planet”. Lastly, an example item of providing an appropriate model is: “I lead by “doing”, rather than simply by “telling”. Appropriate scale items were averaged with higher scores indicating stronger environmental leadership qualities.

Connectedness with Nature and Environmental Concern

The *Nature Relatedness (NR) Scale* (Nisbet et al. 2009) consists of 21-items that measure individuals’ subjective connection with nature (α = .86). In addition to the overall nature relatedness construct, it is possible to compute three subscales that assess dimensions: the self (NR self; α = .84), or how likely an individuals’ identity is linked with nature, perspective (NR perspective; α = .58), or an individual’s views on interfering or harming nature, and experience (NR experience; α = .82), or how much an individual desires to connect with nature. Participants rate how much an item described them on a 5 point-Likert scale ranging from 1 (*disagree strongly*) to 5 (*strongly agree*), with higher scores indicating a stronger connection with nature. Examples of items include: “I am not separate from nature, but a part of nature”, “Humans have the right to use natural resources any way we want”, and “I enjoy digging in the earth and getting dirt on my hands”.

The *Inclusion of Nature in Self Scale* (INS; Schultz, 2001) is a single item measure designed to assess participants' feelings of closeness in their relationship with nature. Seven images represent varying degrees of inclusion of self with nature. Each image consists of two circles, each containing either the word "self" or "nature". The least inclusive is represented by an image where the "self" and "nature" are two separate circles, while the most inclusive is an image where the two circles are merged into one, with the words "self" and "nature" side-by-side. Participants select the image that best described their relationship with nature.

The *Environmental Concern* (Schultz, 2000) scale evaluates participants' biospheric egoistic, and social-altruistic concerns for the environment using 12 items. The biospheric dimension (α = .83) measures concern for environmental problems having an impact on all living things. The egoistic dimension (α = .88) measures concern with how the environment affects one's own well-being, and the social-altruistic dimension (α = .78) measures concern for how the environment may affect other humans. Participants use a 7-point Likert scale ranging from 1 (*not important*) to 7 (*supreme importance*), to indicate their concern for the environment affecting "animals", "plants", "marine life", "birds" (biospheric concern); "me", "my future", "my lifestyle", "my health" (egoistic concern); and "all people", "children", "people in my community", and "my children" (social-altruistic concern).

Personality

The *Big Five Factor Inventory* (BFFI; John & Srivastava, 1999) is a 44-item questionnaire designed to measure individual differences in five factors (dimensions) of personality: extraversion (α = .87), agreeableness (α = .65), conscientiousness (α = .53),

neuroticism (α = .84), and openness (α = .74). Participants used a 5-point Likert scale ranging from 1 (*disagree strongly*) to 5 (*agree strongly*) to rate their agreement with each self-descriptive statement. Example items include "Is talkative", "Get nervous easily", and "Is relaxed, handles stress well". Appropriate items were reverse scored, and means were calculated for each of the five personality traits.

Well-Being

The *Subjective Vitality Scale* (Ryan & Frederick, 1997) captures how alive and energetic a person feels, as well as their purpose and zest for life. The six-item version validated by Bostic and colleagues (2000) was used in the current study (α = .90). Participants rate how true each statement is for them, in general, on a 7-point Likert scale ranging from 1 (*not at all true*) to 7 (*very true*). Example items include "I feel alive and vital" and "I look forward to each new day". Items were averaged with higher scores indicating greater vitality.

The *Positive and Negative Affect Schedule* (PANAS; Watson et al., 1988) measures participants' general positive and negative feelings with a list of 28 emotion words. Participants indicate how they feel, in general, using a 5-point Likert scale ranging from 1 (*very slightly or not at all*) to 5 (*extremely*). Three additional emotion words particularly relevant to nature experiences (i.e., "in-awe", "fascinated", "curious") were added as a measure of nature positive affect (Fredrickson, 2000; Kellert, 1997; Keltner & Haidt, 2003; Williams & Harvey, 2001). Appropriate items were averaged to compute separate scores for positive (α = .90), negative (α = .89), and nature positive (α = .72) affect.

The *Psychological Well-Being Inventory* (PWBI; Ryff, 1989) is a self-report questionnaire designed to assess six dimensions of respondents' psychological well-being. In the current study, three dimensions of interest were captured: personal growth (α = .74), autonomy (α = .78), and purpose in life (α = .75). Participants responded to 27 items (each dimension contained nine items), that pertained to how they feel about themselves and their life using Likert response options ranging from 1 (*strongly disagree*) to 6 (*strongly agree*). Personal growth reflects openness to new experiences and one's desire for development and is measured using items such as "I think it is important to have new experiences that challenge how you think about yourself and the world". The autonomy subscale aims to capture individuals' ability to think for themselves, without succumbing to social pressures. An example item is "I am not afraid to voice my opinions, even when they are in opposition to the opinions of most people". The purpose in life subscale measures an individuals' sense of directedness, meaning and their goals in life with items such as "I enjoy making plans for the future and working to make them a reality". Appropriate items were reverse coded and average scores for each dimension were calculated.

Teacher Competency Questionnaire

The *Perceived Competence to Teach Outdoors* questionnaire (PCTO; Barrable & Lakin, 2020) consists of four items designed to measure participants' perceived ability to teach in outdoor settings (α = .94). This questionnaire was adapted from the Perceived Competence Scale (PCS; Williams & Deci, 1996), which is designed to measure an individuals' perceived competency in relation to a particular behaviour. Participants rated how true each statement was with respect to their perceived ability to teach outdoors on a

Likert scale ranging from 1 (*not true at all*) to 7 (*very true*). Example items include “I am confident in my ability to deliver outdoor experiences” and “I am able to meet the challenge of delivering meaningful lessons in nature”. Items were averaged with higher scores indicating greater perceived competence to teach outdoors.

Barriers and Enablers for Taking Students Outdoors

All participants were asked to identify various barriers that make it difficult for teachers to take students outside. Only current teachers and teacher candidates were then asked follow-up qualitative questions pertaining to the effects of the COVID-19 pandemic on classroom operations. The COVID-19 pandemic has had profound impacts on schooling all over the world, with many choosing to turn to technology to provide virtual learning (Barrett, 2020; Na & Harris, 2021; Superville, 2020). However, because of the fluid nature of the pandemic, it has also forced schools to experiment with classroom settings to find a solution for safe, in-person learning (Noack, 2020). A popular, and inexpensive alternative has been the use of the outdoors as a safer solution to the classroom (Superville, 2020). Therefore, the qualitative questions asked participants to identify any new problems or barriers for taking students outside since the beginning of the pandemic. As well, participants were asked to consider and describe the types of resources, in general, that would enable teachers to take their students outside. These questions were to elicit opinions, challenges, and experiences from various teachers about teaching in the natural environment, and more specifically during the pandemic.

Procedure

The current study was approved by the Trent University Research Ethics Board. This research was conducted online using the survey tool, Qualtrics. Current (i.e., in-service teaching pre-school to grade 12), past (i.e., retired), or future (i.e., teacher candidates) teachers were eligible to participate if they lived in Canada. In efforts to reach this specific group of participants, a recruitment notice was advertised using various forms of media such as email, Twitter, Facebook, and LinkedIn. See Appendix B for sample recruitment email and recruitment notice. Interested participants visited the survey website, which contained all study materials. After providing informed consent, participants provided demographic information and answered various questionnaires pertaining to their leadership style, personality, well-being, impressions of nature, and their perceived competence to teach outdoors. Upon completion or withdrawal from the study, participants were directed to a debriefing form (as part of the online survey) with additional information about the study and environmental education resources. Lastly, participants were offered the chance to be entered in a draw to win a $200 cash prize by providing their email address in a separate online form, not linked to their survey responses.

Results

Data Cleaning and Descriptive Statistics

Before conducting statistical analyses, data were examined for normality, missing values, errors, and outliers. Participants who provided a response set, or completed less than 74% of the survey, or failed an attention check were removed (n = 98) to ensure the data was accurate and reliable (Pallant, 2010). This resulted in a 27.4% attrition rate.

However, data were retained for participants with randomly occurring missing values, where the means were based on the remaining items. There were no significant differences on the study variables based on whether a participant finished the full survey or not.

Boxplots, along with skewness and kurtosis values were used to examine the distributions of each computed variable prior to statistical analysis to determine the presence of any outliers. Forty-two unique outliers were identified. To determine if the outliers significantly influenced the results, each statistical analysis was run twice; with the outliers (i.e., all participants) and without the outliers. The results were identical, thus, the statistical analyses reported are on unadjusted, robust data in a final sample of 260 participants.

Overall, participants reported relatively high scores on environmental leadership, nature relatedness, and environmental concern. Furthermore, participants scored moderately on inclusion of nature in self and their perceived competence to teach outdoors. Participants, in general, scored relatively high on all positive well-being indicators (i.e., vitality, positive affect, nature positive affect, autonomy, purpose in life, personal growth) and scored lower on negative affect. Of the five personality traits, participants scored the highest on the conscientiousness dimension, while also scoring relatively high on openness, extraversion, and agreeableness, and scoring lower on neuroticism. See Table 2 for descriptive statistics for all study measures.

Table 2

Descriptive Statistics for All Measures

Measure (scale anchors)	*N*	*M*	*SD*	Range
The Environmental Leadership Scale (1 – 5)	260	3.76	0.62	1.89 – 5.00
Nature Relatedness (1 – 5)	223	3.80	0.58	1.87 – 4.83
Inclusion of Nature in Self (1 – 7)	229	4.55	1.45	1.00 – 7.00
Biospheric Concern (1 – 7)	227	6.15	0.87	1.50 – 7.00
Egoistic Concern (1 – 7)	227	5.96	1.13	1.00 – 7.00
Social - Altruistic Concern (1 – 7)	227	6.35	0.84	1.50 – 7.00
Extraversion (1 – 5)	254	3.48	0.77	1.63 – 5.00
Agreeableness (1 – 5)	254	3.91	0.43	2.44 – 4.56
Conscientiousness (1 – 5)	254	4.02	0.44	2.56 – 5.00
Neuroticism (1 – 5)	254	2.90	0.79	1.13 – 4.75
Openness (1 – 5)	254	3.66	0.54	1.80 – 4.90
Vitality (1 – 7)	227	4.82	1.24	1.00 – 7.00
Positive Affect (1 – 5)	244	3.81	0.61	1.46 – 5.00
Negative Affect (1 – 5)	244	2.12	0.68	1.00 – 4.25
Nature Positive Affect (1 – 5)	243	3.66	0.82	1.33 – 5.00
Personal Growth (1 – 6)	228	4.90	0.65	2.67 – 6.00
Autonomy (1 – 6)	228	4.11	0.77	1.89 – 5.89
Purpose in Life (1 – 6)	228	4.76	0.69	2.33 – 6.00
Perceived Competence to Teach Outdoors (1 – 7)	260	4.85	1.38	1.00 – 7.00

The focus of this study was environmental leadership, including the dimensions or components of this overall construct. The dimensions of environmental leadership were strongly interrelated. See Table 3 for a correlation matrix of all subscales.

Table 3

Correlations between all six Dimensions of Environmental Leadership

Variable	*M*	*SD*	1	2	3	4	5	6
1. Idealized Influence	3.81	0.76	-					
2. Intellectual Stimulation	3.95	0.69	.74**	-				
3. Inspirational Motivation	3.70	0.67	.71**	.63**	-			
4. Individual Consideration	3.80	0.70	.63**	.71**	.53**	-		
5. Acceptance of Group Goals	3.64	0.87	.66**	.73**	.61**	.69**	-	
6. Appropriate Model	3.68	0.74	.72**	.67**	.65**	.58**	.65**	-

† $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Environmental Leadership and Connections with Nature

Using a correlational analysis, I investigated my first hypothesis that teachers who possess environmental leadership qualities would have a stronger connection with nature. In other words, nature relatedness and inclusion of nature in self would be positively correlated with each of the six aspects of environmental leadership (i.e., idealized influence, intellectual stimulation, inspirational motivation, idealized influence, acceptance of group goals, and providing an appropriate model), and overall environmental leadership. As expected, all aspects of environmental leadership were significantly and positively related to both nature relatedness and inclusion of nature in self (see Table 4 for correlations between nature connectedness and leadership). Environmental leadership overall had the strongest correlation with nature relatedness as did idealized influence. Environmental leadership had somewhat stronger links with nature relatedness compared to inclusion of nature in self, particular in terms of inspirational motivation, individualized consideration, and intellectual stimulation.

Overall, teachers who possess environmental leadership qualities are more connected with nature.

Table 4

Correlations between Environmental Leadership (i.e., all six subscales and composite) and Nature Relatedness and Inclusion of Nature in Self

Variable	Nature Relatedness	Inclusion of Nature in Self
Idealized Influence	.52**	.43**
Intellectual Stimulation	.45**	.36**
Inspirational Motivation	.39**	.26**
Individualized Consideration	.40**	.31**
Acceptance of Group Goals	.44**	.32**
Appropriate Model	.47**	.42**
Environmental Leadership	.53**	.42**

† $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Environmental Leadership and Well-Being

The second hypothesis was that teachers who possess environmental leadership qualities would report greater subjective well-being. Correlational analysis revealed each of the six environmental leadership subscales (i.e., idealized influence, intellectual stimulation, inspirational motivation, idealized influence, acceptance of group goals, and providing an appropriate model) was positively and significantly associated with each of the well-being indicators (see Table 5 for all leadership-well-being correlations). Each dimension of environmental leadership along with the overall environmental leadership composite was significantly and positively correlated to positive affect and nature

positive affect. Furthermore, environmental leadership in general was the most highly correlated with positive affect and nature positive affect. Negative affect was unrelated to all aspects of environmental leadership, although the non-significant (negative) correlations were all in the expected direction. In other words, environmental leaders tend to have more positive emotions and leadership has little or no relationship with negative emotions.

Teachers who exemplify qualities of environmental leadership are more likely to feel a stronger sense of personal growth and purpose in life. Moreover, teachers are more likely to feel autonomy when they exemplify idealized influence, when they are providing an appropriate model, or when they are exemplifying environmental leadership qualities overall. However, teachers are less likely to feel autonomous when exemplifying all other behaviours of environmental leadership (i.e., intellectual stimulation, inspirational motivation, individualized consideration, and the acceptance of group goals). All environmental leadership subscales and composite variable were significantly and positively correlated to vitality, with the strongest relationship being between the environmental leadership composite variable and vitality. Overall, the relationships between teachers' environmental leadership and well-being indicators do suggest that possessing environmental leadership qualities are associated with a greater positive well-being, confirming the second hypothesis.

Table 5

Correlations between Environmental Leadership (i.e., all six subscales and composite) and General Well-Being Indicators

Variable	Positive Affect	Negative Affect	Nature Positive Affect	Autonomy	Personal Growth	Purpose in Life	Vitality
Idealized Influence	.38**	-.07	.26**	.19**	.29**	.19**	.28**
Intellectual Stimulation	.33**	-.05	.21**	.12	.27**	.17*	.24**
Inspirational Motivation	.35**	-.06	.25**	.13	.23**	.22**	.28**
Individualized Consideration	.26**	-.05	.19**	.12	.27**	.14*	.22**
Acceptance of Group Goals	.32**	-.02	.21**	.10	.23**	.18**	.25**
Appropriate Model	.34**	-.10	.22**	.22**	.21**	.19**	.25**
Environmental Leadership	.39**	-.07	.26**	.17**	.29**	.21**	.30**

† $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Environmental Leadership and Perceived Competence to Teach Outdoors

Teachers' overall environmental leadership behaviours were expected to correlate with their perceived competence to teach outdoors (Hypothesis 3a). Indeed, teachers who possessed environmental leadership qualities were significantly more likely to feel competent to teach outdoors, $r(258) = .47$, $p < .01$.

Furthermore, a multiple linear regression was used to test whether dimensions of environmental leadership (i.e., idealized influence, intellectual stimulation, inspirational

motivation, individualized consideration, fostering the acceptance of group goals, and providing an appropriate model) predicted competence to teach outdoors. The overall regression was statistically significant. However, only the subscales of providing an appropriate model significantly predicted teachers' perceived competence to teach outdoors and individualized consideration were significant (and weakly related). Idealized influence, intellectual stimulation, inspirational motivation, and fostering the acceptance of group goals did not significantly predict teachers' perceived competence to teach outdoors. Therefore, hypothesis 3b was partially supported. Refer to Table 6 for the multiple regression analysis.

Table 6

Multiple Regression Analysis for Environmental Leadership Subscales and Teachers' Perceived Competence to Teach Outdoors

Variable	β	*SE*	sr^2	*r*
Idealized Influence	.14	0.18	.01	.42
Intellectual Stimulation	.09	0.20	.00	.42
Inspirational Motivation	-.08	0.17	.00	.32
Individualized Consideration	.15†	0.17	.01	.41
Acceptance of Group Goals	.06	0.14	.00	.40
Appropriate Model	.19*	0.16	.02	.43

Note. R^2 = .24***. β = standardized coefficients; *SE* = coefficients standard error; sr^2 = semi-partial correlations squared; *r* = zero-order correlation.

† $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Teachers' Personality Traits and Environmental Leadership

I anticipated that personality (i.e., openness, conscientiousness, extraversion, agreeableness, and emotional stability) would be positively associated with environmental leadership qualities (Hypothesis 4a). Teachers who were more open, conscientious, extraverted, and agreeable were significantly more likely to possess environmental leadership qualities (see Table 7 for correlations between personality and environmental leadership). More specifically, openness to experience had the strongest association with environmental leadership. Teachers with less emotional stability (more neuroticism) were less likely to possess environmental leadership qualities.

Table 7

Correlations between Teachers' Personality Traits and Environmental Leadership

Variable	Environmental Leadership
Openness	.35**
Agreeableness	.26**
Conscientiousness	.21**
Extraversion	.19**
Neuroticism	-.15*

$^{+}$ $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Some dimensions of personality (i.e., openness, conscientiousness, extraversion, agreeableness, and neuroticism) were expected to uniquely contribute to a significant proportion of the variance in teachers' environmental leadership (Hypothesis 4b). Thus, a five-stage hierarchical multiple regression analysis was conducted with personality entered in the order expected to be most influential. The first block included openness as the first predictor and the results indicated the model to be statistically significant, with

12% of the variance explaining teachers' environmental leadership. The results from the second block analysis, which added agreeableness, found the model to be statistically significant. Specifically, after controlling for openness, agreeableness accounted for an additional 5% of the variance in teachers' environmental leadership. The third block analysis included extraversion as the third predictor in the model. The results indicated a statistically significant model with an additional 1% of the variance explaining teachers' environmental leadership after controlling for openness and agreeableness. The fourth block included conscientiousness as the fourth predictor which produced a statistically significant model, where conscientiousness explains an extra 2% of the variance of teachers' environmental leadership when controlling for openness, agreeableness, and extraversion. Lastly, the fifth block included neuroticism as the fifth predictor variable. The results indicated a non-statistically significant model with an R^2 change value of .00, which indicates that when controlling for openness, agreeableness, extraversion, and conscientiousness, neuroticism explains very little to no additional variance in teachers' environmental leadership.

Overall, all five predictor variables (i.e., openness, agreeableness, extraversion, conscientiousness, and neuroticism) accounted for 19.3% of the variance in teachers' environmental leadership. The two most important personality predictors of teachers' environmental leadership were openness to experience and agreeableness after controlling for all other personality predictors. In other words, the more a teacher exemplifies traits of openness and agreeableness, the more likely they are to express environmental leadership qualities. Furthermore, openness, agreeableness, extraversion, and conscientiousness significantly predicted teachers' environmental leadership,

whereas neuroticism does not significantly predict teachers' environmental leadership. Refer to Table 8 for the hierarchical multiple regressions.

Table 8

Hierarchical Regression Results for Personality Dimensions predicting Environmental Leadership

Variable	Cumulative		Simultaneous	
	R^2	ΔR^2	*b*	*SE*
Step 1	.12	.12***		
(Constant)			2.32	0.25
Openness			0.40***	0.07
Step 2	.17	.05***		
(Constant)			1.22	0.38
Openness			0.37***	0.07
Agreeableness			0.31***	0.08
Step 3	.18	.01*		
(Constant)			1.02	0.39
Openness			0.34***	0.07
Agreeableness			0.30***	0.08
Extraversion			0.09*	0.05
Step 4	.19	.02*		
(Constant)			0.54	0.45
Openness			0.34***	0.07
Agreeableness			0.25**	0.09
Extraversion			0.09	0.05
Conscientiousness			0.18*	0.08
Step 5	.19	.00		
(Constant)			0.66	0.56
Openness			0.34***	0.07

Agreeableness	0.24**	0.09
Extraversion	0.08	0.05
Conscientiousness	0.18*	0.09
Neuroticism	-0.02	0.05

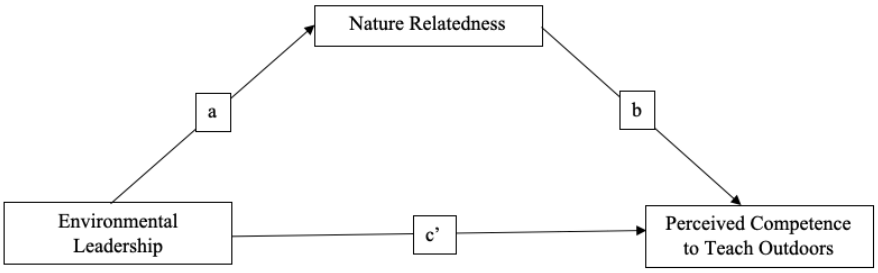
† $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Nature Relatedness Mediating Teachers' Environmental Leadership and Perceived Competence to Teach Outdoors

To determine if nature relatedness mediates the association between teachers' environmental leadership and their perceived competence to teach outdoors (Hypothesis 5), a mediation analysis was conducted using the steps outlined by Baron and Kenny (1986). The first step of the analysis was to determine that there was an effect to be mediated; thus, a simple linear regression was calculated to examine the association between teachers' environmental leadership and their perceived competence to teach outdoors (see Figure 1 for the proposed mediation analysis).

Figure 1

Proposed Mediation Analysis between Environmental Leadership, Nature Relatedness, and Perceived Competence to Teach Outdoors



The results from the simple linear regression indicated environmental leadership to explain a significant proportion of the variance in perceived competence to teach outdoors, $R^2 = .22$, $F(1, 258) = 73.54$, $p < .001$. A second simple linear regression was

calculated which indicated environmental leadership predicts a significant proportion of the variance in nature relatedness, R^2 = .28, $F(1, 221) = 85.64$, $p < .001$. The third step was to calculate a multiple regression using teachers' perceived competence to teach outdoors, environmental leadership, and nature relatedness scores. Environmental leadership and nature relatedness accounted for a significant proportion of the variance in teachers' perceived competence to teach outdoors, R^2 = .19, $F(2, 220) = 25.25$, $p < .001$. However, the effect of teachers' environmental leadership on their competence to teach outdoors was not due (fully or partly) to their nature relatedness, b^* = -.08, SE = 0.17, $p >$ .05 The fourth and final step was to test the significance of the indirect effect, using the Sobel test (Sobel, 1982), -0.47, $p > .05$, which indicated no indirect effect of teachers' environmental leadership on their perceived competence to teach outdoors through nature relatedness. Refer to Table 9 and Figure 2 for mediation results.

Table 9

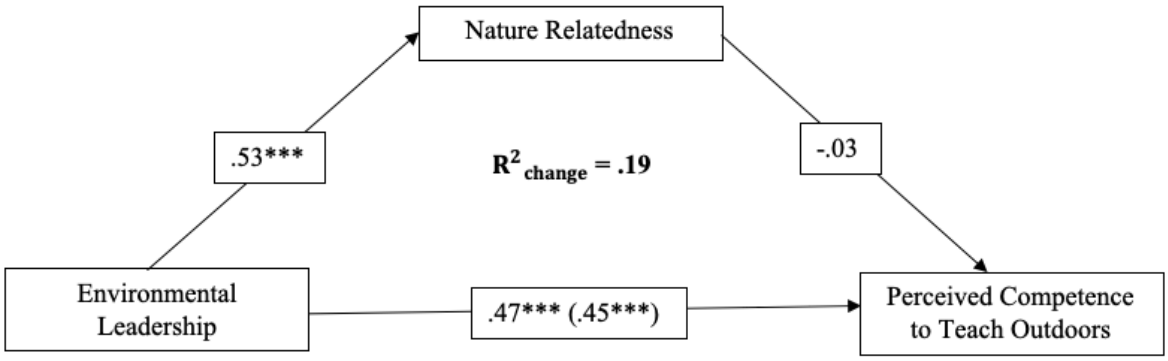
Regression Analysis for Variables Predicting Teachers' Perceived Competence to Teach Outdoors

Variable	*b*	*SE*	β	*t*	R^2
Step 1					
Environmental Leadership	1.04***	0.12	.47	8.58	.22
Step 2					
Environmental Leadership	1.02***	0.16	.45	6.27	.19
Nature Relatedness	-.08	0.17	-.03	-.47	
Sobel test: z = -0.47, $p > .05$					

† $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Figure 2

Mediation Analysis of Nature Relatedness between Teachers' Environmental Leadership and their Perceived Competence to Teach Outdoors



Note. Coefficient presented (inside of the parentheses) is the mediated path.

† $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Qualitative Analyses

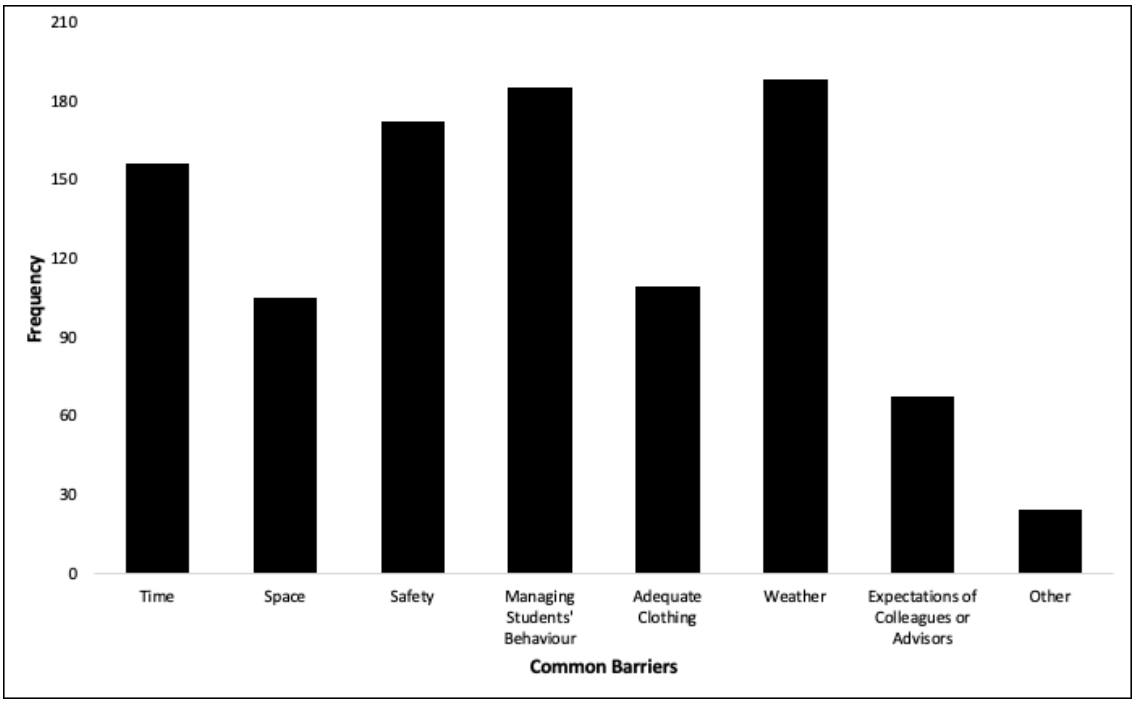
Barriers to Taking Students Outdoors

To gain a deeper understanding of the various barriers and enablers that teachers considered important when taking students outdoors (with and without the COVID-19 pandemic), multiple thematic content analyses were conducted to capture key themes in the responses. A systematic four-step coding process was used to ensure accuracy when determining frequent responses. To examine the first question, which asked participants to select common barriers or problems that make it difficult for teachers to take their students outdoors, a frequency count was conducted. The top three barriers were weather (n = 189), managing students' behaviour (n = 186), and safety (n = 173). These barriers reflect both structural (i.e., safety) and psychological limitations (i.e., weather and managing students' behaviour) that a teacher may experience. See Figure 3 for a graphical illustration of the common barriers. Additionally, participants had the option to

indicate other barriers that were not already listed in the survey. A thematic content analysis was conducted on 25 participants' responses. Other common barriers that make it difficult for teachers to take their students outdoors were lack of training, resources, and the structure of the education system. These barriers reflect more structural limitations that teachers may encounter on the job.

Figure 3

Frequencies of Common Barriers for Taking Students Outdoors



Only current teachers and teacher candidates were asked a follow-up open-ended question which aimed to elicit descriptions of barriers that have prevented teachers from taking their students outdoors since the beginning of the COVID-19 pandemic. A thematic content analysis was conducted on 52 responses, and the resulting themes were recognized as structural barriers. Online and hybrid teaching, COVID-19 policies, and school board restrictions were common themes that limited teachers' ability to take students outdoors during the COVID-19 pandemic.

Online and hybrid teaching made it difficult for teachers to take their students outdoors due to the inability of the teacher to physically be with their students and to guide them outside. For example, participant 73 stated "…we can encourage students to go outside during asynchronous sessions and recesses, but we cannot have them outside as easily during synchronous learning". As a result, this places a greater emphasis on parents and guardians to encourage and accompany their children outdoors which may be difficult because of their own competing responsibilities.

The COVID-19 policies and regulations imposed additional responsibilities for teachers to manage on a day-to-day basis such as vaccine and mask mandates, social and physical distancing, sanitizing, and wearing proper PPE. Teachers may perceive the indoors as a more manageable setting to supervise their students and to make sure they are following the COVID-19 policies that had been put in place. For example, participant 151 stated "…kids are permitted to remove masks outside if distanced 2 metres, but it's very difficult to maintain that distance for younger grades". This provides just one perspective of the extra challenges teachers must have faced when taking their students outdoors, especially among younger students who may require more supervision.

As a result of the COVID-19 policies, new school board restrictions such as "cohorting" prevented teachers from taking their students outdoors during the COVID-19 pandemic. As the health and safety of students and staff was of primary concern during the pandemic, school boards grouped students into cohorts to limit the exposure of the virus, which caused many logistical issues for taking students outdoors. For example, participant 90 stated "mixing of cohorts outdoors – cannot have more than one cohort

outside in one area at once…". Therefore, "cohorting" exemplifies one type of constraint within which teachers had to work and plan around when taking their students outdoors.

Conversely, some teachers indicated that the COVID-19 pandemic encouraged them to take their students outdoors. Participant 79 stated "…I have found it better to take kids outside during the pandemic because they are allowed to take their mask off in some circumstances and get some fresh air. Also, they can move around more because since the beginning of the pandemic there is not as much movement accepted in the classroom". This describes how the pandemic can be considered as a motivator for teachers to take their students outdoors, because of the many benefits of being in an open, outdoor area. Furthermore, some teachers suggested that they had support from the school and from their peers that made them feel able to take their students outdoors. Overall, the results from the thematic content analysis suggest that psychological and structural barriers are present with and without the COVID-19 pandemic. Thus, it is important to consider what might enable teachers, in general, to take their students outdoors.

Enablers for Taking Students Outdoors

Current teachers and teacher candidates were asked to describe, in general, various enablers for taking students outdoors (an open-ended question). A thematic content analysis was conducted on 60 responses. The most common themes stem from a change in structural barriers. These themes include approval from the administration and from parents, teacher training, additional resources, and easing of the COVID-19 restrictions.

Approval from the administration and from parents play a key role in teachers feeling supported to take students outdoors. For example, participant 83 stated "I think

approval is always helpful in making teachers feel confident in what they are doing." Encouragement from both the administration and from parents provide teachers with reassurance that they have the abilities take students outdoors and utilize an unconventional classroom space. Teachers being in an outdoor environment with students, however, calls on skills and competencies different from a classroom setting. Therefore, the second common theme was teacher training. Teachers felt as though extra training would help them navigate the challenges they may encounter while taking students outdoors such as, learning how to connect the outdoor environment with the curriculum, managing students in a non-traditional classroom environment, developing clear communication skills, and motivating students and their creativity. For example, participant 151 stated "…learning how to plan engaging lessons for outdoor learning and allowing opportunities for exploring or adventure would be beneficial…". Generally, teachers are interested in taking their students outdoors, but they feel they need more training to do this properly.

Another common theme that emerged from the data came from the need for more resources. This includes but is not limited to, more accessible outdoor space, additional funding for educational equipment, transportation, proper clothing, as well as extra volunteers or staff that can help manage the students. Teachers feel as though more help overall will equip them with the necessary tools to take students outdoors properly and safely.

With regards to the COVID-19 pandemic, teachers stated that the easing of the pandemic restrictions and a return to in-person learning would enable more outdoor time with students. For example, participant 122 stated "…full class time outdoors – this could

improve communication by removal of masks and could encourage students to be more active rather than having to remain still in their desks for full blocks". This illustrates how being outside can allow students a small break from some of the COVID-19 restrictions (i.e., masks), while also letting them be more active, and helping teachers to not have to worry as much about spreading the virus while being in an open, outdoor space. Being able to take a class of students outdoors, while keeping up the safe COVID-19 practices would not be possible without a return to in-person learning. This thematic content analysis has demonstrated that teachers are interested and wanting to take students outdoors. However, there is a need to improve and change some of the structural barriers that are currently in place so teachers can feel supported, encouraged, and competent in their abilities to take students outdoors.

Motivations for Trent's Eco-Mentorship Program

Trent University's Eco-Mentorship Certificate program is a unique opportunity offered to teacher candidates to further their knowledge on environmental education which affords them the opportunity to mentor students on environmental stewardship. Thus, it was of interest to investigate the motivations behind taking this program from teachers at different career stages. First, a frequency count indicated that 34 participants of the 260 were currently enrolled in the eco-mentoring program, had completed the program in the past or planned to complete it in the future. Second, an open-ended question was posed to all participants asking what motivated them to get involved in the program, what they hoped to get out of the program, or what their experiences had been if they had already been through the program. A thematic content analysis was conducted on 31 responses.

Two themes illustrate the various motivations for teachers taking Trent's Eco-Mentorship Certificate program: enriched teacher training and passion for the environment. Both themes speak to the interest of teachers wanting to learn more environmental education for their own knowledge and growth, but to also teach students confidently about the importance of nature and its conservation and sustainability. The first theme of enriched teacher training encompasses the desire teachers must have to learn more about environmental education, how to effectively incorporate it into their lessons, and how to plan and execute practical activities that help students understand the importance of sustainability. For example, participant 237 stated "environmental issues are incredibly important and need more attention in our government and society. It would benefit me greatly to be equipped in this area and bring these issues into the classroom effectively and consistently". This exemplifies teachers' plea for knowledge on important issues, such as climate change that affect everyone and in which they can feel confident they are teaching students the right tools to preserve nature.

The second theme of passion for the environment stems from teachers' care and concern for nature and the environment and their want to learn more about how to protect it. By learning more about something they are passionate about, this can help teachers effectively relay information to their students about environmental issues and how everybody is responsible for helping to sustain the planet. Many teachers hoped that the Eco-Mentorship program could teach them how to share environmental knowledge with their students and in return to have their students develop and grow their empathy towards nature and the environment. For example, participant 117 stated "I care deeply about the Earth, and I feel it is very important to learn about how I can teach the next

generation how to become allies of the Earth and the natural world". Some teachers already have foundational knowledge about the environment, while others have not learned much about this topic but are keen to broaden their own perspectives and knowledge. Sharing an understanding with other teachers about the importance of protecting the planet and teaching future generations about how to effectively do this adds to the depth of Trent's Eco-Mentorship program, which is echoed in some teachers' hopes for the program. For example, participant 222 stated "I think it is important to have a focus on the environment and helping youth to view themselves as able to make meaningful, positive contributions to environmental efforts. I hope the program will help me develop tools and skills to better do this". Additionally, teachers hope the Eco-Mentorship program will be resourceful and inclusive, while being able to equip them with different methods of teaching, improve upon their communication skills while delivering environmental lessons, and boosting their confidence when teaching outdoor education.

Discussion

While the environmental leadership framework is relatively new to research, the current study explores its application to teachers, an unconventional (or perhaps underestimated) leadership role, and provides insight on its associated individual outcomes. Furthermore, this study sheds light on how environmental leadership among teachers affects their actions and behaviours with their students. Results from present, past, and future teachers suggest that connections with nature, positive emotions, psychological well-being, vitality, positive personality traits, and perceived competence to teach outdoors are associated with environmental leadership. Structural and

psychological barriers and enablers are also considered by teachers when taking their students outdoors both before and during the COVID-19 pandemic. While the current study is not without limitations, the results increase our understanding of the environmental leadership framework and its implications for teachers' individual outcomes, which provides direction for future research and practices.

Environmental Leadership and Nature Connection

Teachers in this study who possess environmental leadership qualities also have a greater connection with nature. Specifically, teachers with environmental leadership qualities also see themselves as being more related to nature and all its forms, as well as feeling as though nature is closely intertwined with their own identity. Although the link between environmental leadership qualities and nature connection is somewhat expected, to my knowledge this was the first time the association was tested.

When teachers act as an environmental leader and environmental role model for their students is also when they may feel the most connected with nature. Past research suggests an individual's positive relationship with nature is a prerequisite for environmental protection and endorsing pro-environmental attitudes (Fisher, 2002; Mayer & Frantz, 2004; Nisbet et al., 2009). Environmental protection may appear in different forms such as engaging in pro-environmental behaviours, educating oneself and others about environmental topics, and advocating for the sustainability of our planet; all which are behaviours that teachers with environmental leadership qualities may perform. Additionally, individuals who are highly connected with nature also hold more serious views about the state of the natural environment, as well as ecological issues (Nisbet et al., 2009). This may help to explain why some teachers portray qualities of environmental

leaders as they are passionate about caring for the natural environment and are motivated to share these values and attitudes with others.

When teachers act as environmental role models with their students (i.e., exemplifying idealized influence) they may feel that nature is closely tied with their identity. These teachers may feel that protecting nature is an extension of protecting themselves and their future. Thus, these teachers may be more motivated to directly partake in environmental stewardship activities with their students and educate them on how to advocate for the environment. This ideation highlights the fact that the human-nature relationship is bidirectional (Davis et al., 2011). Furthermore, teachers with environmental leadership qualities may feel that nature is more connected to their sense of self because they may have developed environmental identity, a concept coined by Clayton (2003) that states individuals develop a collective identity with nature and share more positive emotions towards the environment. As a result, these individuals tend to partake in more pro-environmental behaviours (Davis et al., 2011). Thus, role modeling sustainable behaviours to students is likely to increase teachers' closeness with nature and lead to teachers including nature in their self-concept.

Now that a link has been established between teachers' environmental leadership qualities and nature connectedness, it would be of interest for future studies to determine direction and causality. This would provide more of an understanding of whether environmental leadership qualities develop first, or if nature connectedness develops first among teachers. This type of information will have implications on advancing research in this area, as well as creating programs that will help teachers to develop environmental leadership qualities and a connection with nature. Perhaps this type of information may

also have implications for how teacher candidates are recruited. Additionally, future studies may want to investigate the long-lasting impacts of students being exposed to teachers who exemplify environmental leadership.

Environmental Leadership and Psychological Well-Being

Teachers who possess environmental leadership qualities also have more positive subjective well-being. Specifically, teachers who exemplify environmental leadership qualities experience more positive emotions, vitality, autonomy, greater personal growth, and find more purpose in life, whereas negative emotions were unrelated to teachers' environmental leadership. These results may be viewed with a few different perspectives. Firstly, to my knowledge, the current study is the first of its kind to examine the subjective well-being of teachers who exemplify environmental leadership qualities. Thus, these results establish a link between environmental leadership and positive well-being indicators. Past research has hinted at this association as environmental leadership is associated with positive employee well-being (Kelloway et al., 2012), thus, it has been suggested that the leader may feel the same positive effects.

Additionally, teachers who are environmental leaders not only possess qualities that allow them to show care and concern for their students, but also for the natural environment. Past research has shown that there is an association between an increased care and concern for the natural environment with individuals who feel connected with nature (Nisbet et al., 2009). Teachers with environmental leadership qualities are also connected with nature, therefore, these individuals may be more likely to spend time outdoors and engage in pro-environmental behaviours (Mayer & Frantz, 2004; Nisbet et

al., 2009; Nisbet & Zelenski, 2013; Tam, 2013); all of which contribute to greater well-being.

Teachers with environmental leadership qualities may be better equipped to use their positive psychological well-being to combat stress that appears in their role as a teacher. Teachers hold a high-stress workplace position (Kyriacou, 2001). Evidence from a recent study in the United States found that 90% of teachers experience work-related stress (Herman et al., 2018), which is often associated with negative consequences for their emotional and professional well-being (McCarthy et al., 2009), and can lead to job dissatisfaction, and even burnout (Betoret, 2009; Klassen et al., 2013; Maslach et al., 2001). However, teachers with environmental leadership qualities and nature connectedness may see the natural environment as an opportunity to reduce their feelings of stress, anxiety, and depression (Capaldi et al., 2015; Mackay & Neill, 2010) and increase their positive emotions and restoration (Hartig & Staats, 2006), which past research has supported. Thus, teachers may be more motivated to take on environmental leadership qualities knowing that it helps to provide a positive psychological well-being, which may help to buffer any negative emotions while at work.

Interestingly, teachers' overall environmental leadership was related to feelings of autonomy; however, only some environmental leadership behaviours were significantly associated with teachers' autonomy; namely, idealized influence and providing an appropriate model. In other words, teachers feel autonomous when they are role modeling environmental behaviours to their students or are trying to influence their students to care more about the environment. Autonomy is also known as self-determination and independence (Ryff, 1989), which are similar to the types of behaviours that leaders can

exemplify. Specifically, while teachers role model and influence environmental behaviours among their students they are thinking independently and are determined to lead by example. Another aspect of autonomy is resisting the norm (Ryff, 1989). It is possible that teachers who role model environmental attitudes and influence care and concern for the environment feel that they typically exemplify behaviours outside of the social norm. For example, engaging in pro-environmental behaviours is something one does outside of the norm, therefore, the more they engage in such behaviours the more they feel they are deviating from conformity, resulting in feelings of autonomy. Furthermore, teachers' environmental leadership is highly associated with the personality trait of openness to experience, which share similar behaviours with autonomy. Open individuals like to challenge the status quo and are more receptive to alternative ways of thinking (Brick & Lewis, 2016). Thus, past research does support and provides an explanation for the association between idealized influence and providing an appropriate model with teacher autonomy.

Environmental Leadership and Perceived Competence to Teach Outdoors

It was of interest to determine if teachers' environmental leadership qualities were related to their perceived competence to teach outdoors, and the findings confirmed an association. This could be because acting as an environmental leader means you have a passion for learning about the environment and teaching about it to others, which is what these teachers may be doing with their students. It may also be due to professional development opportunities. Teachers may find they are being presented with more opportunities to develop their understanding of environmental education or practice their outdoor skills due to the relevancy of the topic. However, to develop a comprehensive

understanding, future studies should continue to explore why teachers think they are able to teach outdoors or teach environmental topics and what has prepared them to do so.

It was also of interest to determine if each environmental leadership quality a teacher possessed significantly contributed to their perceived competence to teach outdoors. This was partially confirmed by the results as only one environmental leadership quality, providing an appropriate model, significantly predicted teachers' perceived competence to teach outdoors. This link suggests that when teachers are providing examples of environmental behaviours and teaching environmental stewardship to their students is when they also feel competent in their abilities to effectively deliver this content. The other five environmental leadership qualities did not individually predict teachers' perceived competence to teach outdoors. These results suggest that only one aspect of environmental leadership seems to be the most important, potentially, in contributing to the confidence teachers have to go outdoors with their students. Thus, it would be interesting for future research to develop or reassess current interventions that educate teachers on how to be environmental role models at school which might help to identify other factors that teachers need to feel competent in their ability to teach students outdoors.

Moreover, a mediation analysis was conducted between environmental leadership and perceived competence to teach outdoors as explained by nature relatedness. The results indicated that nature relatedness did not explain why teachers who show environmental leadership qualities have a greater perceived competence to teach outdoors. There are a few explanations for this surprising finding. First, the study supports the fact that teachers who express environmental leadership have a connection

with the natural environment, however, that does not mean that teachers necessarily feel knowledgeable about the environment and know how to protect it. A passion for nature may not translate into knowledge about nature and thus, may not make these teachers feel confident enough to teach their students about the outdoors. Although they may enjoy being outdoors, they may not feel equipped to teach about it. Second, there could be a different mechanism altogether that helps to predict why teachers have a perceived competence to teach outdoors, rather than due to nature relatedness. Thus, it would be intriguing for future studies to examine other factors such as personality or amount of environmental education professional development to mediate the relationship between environmental leadership and perceived competence to teach outdoors. Third, there could be an alternate path in which environmental leadership mediates the links between nature relatedness and teachers' perceived competence to teach outdoors. Retrospective research would potentially help to identify what characteristics are developed in teachers and in what order.

Environmental Leadership and Personality

As predicted, teachers who possess environmental leadership qualities also report more positive personality traits, such as openness, agreeableness, conscientiousness, and extraversion. This is consistent with the research on transformational leadership, in which this type of leadership involves positive personality traits and behaviours which elicits positive outcomes from those around them (Bono & Judge, 2004). More specifically, openness to experience was highly associated with teachers' environmental leadership which suggests that these teachers might be modern-thinkers and progressive in their way of teaching. As environmental education is now being required to be infused in all

subjects at all grades, teachers who possess an open personality may be more ready to teach this type of content to students which may help to create a shift in getting others to care about the sustainability of the natural environment.

Furthermore, and as predicted, teachers who possessed environmental leadership qualities were more likely to be emotionally stable. This is consistent with research that states that self-confidence, which is associated with emotional stability, is a requisite for taking on a leadership role (Northouse, 1997). Emotional stability is an important quality to have as a leader and as a teacher as it shows strength in their ability to be level-headed and logical, while being a constant support for others in need (Bono & Judge, 2004). Therefore, teachers with more emotional stability and environmental leadership qualities may be more confident in their abilities to teach environmental education, while also supporting students' exploration of environmental stewardship. A teacher that exemplifies environmental leadership and has more emotional stability may also help to facilitate more positive student outcomes, which is an avenue for future research.

Moreover, it was of interest to determine how much of each personality trait explained why teachers are environmental leaders. Each of the Big Five personality traits, except for neuroticism, significantly predicted teachers' environmental leadership. Specifically, openness to experience was the personality trait that explained why teachers may become environmental leaders the most. This finding is somewhat consistent with the research that suggests that open individuals are typically creative and resourceful when planning long-term solutions for environmental sustainability (Brick & Lewis, 2016), while expressing pro-environmental attitudes and behaviours (Hilbig et al., 2012; Hirsh & Dolderman, 2007; Markowitz et al., 2012). These are similar to the types of

behaviours that environmental leaders express, such as idealized influence and inspirational motivation qualities. Past research has also determined that nature relatedness is highly associated with an open personality (Nisbet et al., 2009). As the current study found a connection between environmental leadership and nature connectedness, teachers with an open personality may also be more adventurous and interested in nature, as well as developing environmental leadership qualities. However, some research suggests that extraversion instead of openness is the key to developing leadership qualities as extraverted individuals value personal relationships with others, are socially assertive and influential (Depue & Collins, 1999), and tend to exhibit optimistic views of the future (Bono & Judge, 2004). Furthermore, past research has shown that extraversion has robust relationships with leader behaviours and outcomes (Bono & Judge, 2004). Therefore, it would be important to continue studying how personality plays a role in the formation of environmental leadership qualities among teachers.

The limited research on how personality contributes to environmental leadership contains conflicting findings for how much of a role is played by agreeableness, extraversion, and conscientiousness (Brick & Lewis, 2016). This is somewhat reflected in the current study as the differences in contribution from each personality trait are very small, thus it is possible that findings could be different in an alternate cohort of participants. Thus, future research should continue to examine personality as it pertains to environmental leadership to sort out the inconsistencies. It would also be important for future research to determine if environmental leadership among teachers emerges early or whether certain personality traits are a prerequisite to developing environmental

leadership. Altogether, the current study found personality to contribute a relatively small amount (19.3%) to the explanation of what makes teachers environmental leaders. This indicates that there are more factors to explore to fully understand how and why teachers become environmental leaders.

Qualitative Analyses

Barriers and Enablers for Taking Students Outdoors

Structural and psychological themes represent barriers and enablers that teachers perceive when taking students outdoors with and without the context of the COVID-19 pandemic affecting school operations. Before the COVID-19 pandemic, the top three concerns preventing teachers from taking their students outdoors were weather, managing student behaviour, and safety. Weather may be considered a psychological barrier for teachers as it can be unpredictable, and some students may not have the proper attire for the outdoors. As a result, teachers may argue that teaching students indoors is a more comfortable setting for all.

Managing student behaviour is the second most stated barrier for taking students outdoors. One potential explanation is because students may see the outdoors as a space where they can decompress and experience greater freedom from the classroom setting. Students may not feel as though the rules that are communicated in the classroom still apply to them while learning outdoors. For these reasons, teachers may feel that expecting students to learn in an outdoor space could cause potential issues. Furthermore, teachers could argue there are more distractions for students outside (ex., plants and animals, people, vehicles, weather) that could hinder their ability to focus which may cause behavioural issues; however, this is contradictory to what the research states.

Quality, well-structured outdoor learning experiences has been found to have positive effects on attention and increase executive brain functioning (Bourrier et al., 2018), especially with those who identify with attention deficit hyperactivity disorder (Faber Taylor & Kuo, 2011). There is also strong evidence that supports outdoor learning as it decreases student stress and increases self-discipline, self-esteem, as well as an interest and enjoyment in learning (Kuo et al., 2019).

Safety is a top priority for schools and teachers are seen as the main protectors of students on a daily basis. Thus, it is understandable that safety is considered a concern when taking students outdoors. When students and teachers are indoors, they may feel they are in a controlled classroom setting; however, when learning outdoors teachers must be ready for more unexpected occurrences. Personal health and safety could become compromised. For example, injuries, allergic reactions, and violations of personal space to name a few. For these reasons, teachers may need to be on high alert when taking their students outdoors to protect student safety. Thus, to minimize threats to safety teachers may choose to stay indoors in a space with familiarity. Weather, managing student behaviour, and safety are all primary concerns when taking students outdoors, however, with a global pandemic added to the situation teachers have been exposed to new challenges that may have hindered their ability to take students outdoors.

With the COVID-19 pandemic playing a role in school operations, teachers were concerned about online and hybrid teaching, the policies put in place to help control the spread of COVID-19, and as a result new school board restrictions which all limited their ability to take students outdoors. Online and hybrid teaching was particularly challenging for teachers when trying to get their students outdoors as they could not physically be

with them to do so. This meant relying on parent or guardian figures to take students outdoors which might have been challenging or unrealistic due to other pressures posed by the pandemic. Teachers could only advocate for the importance of going outdoors while learning was virtual; unlike in-person learning, teachers could not lead students outdoors. This really highlights the importance of students experiencing in-person learning as the presence of a teacher may be necessary for students to experience outdoor education.

During the periods in which schools were not online during the pandemic, COVID-19 policies were implemented in schools to help stop the spread of the virus. Policies like social distancing, and mask and vaccine mandates were added to help keep everyone at school safe and healthy. These rules applied to everyone while they were indoors, but also while they were outdoors. However, students may feel that while they were outdoors, they could challenge some of the new policies because they were outside and not in an enclosed space. Thus, teachers might have been tasked with paying extra attention to students while they were outside so that they did not violate the rules and challenge the new policies which could put peoples' health at risk.

As a result of the COVID-19 policies, new school board restrictions were put into place. One major restriction that affected teachers taking their students outdoors was "cohorting". This was implemented so that students could only see and somewhat interact with other students at their grade level. However, as a result of formulating cohorts, outdoor space was limited as only one or two cohorts could be outside at the same time. Thus, if teachers wanted to take their students outdoors for learning purposes, they might not have been able to because of the cohort rule; or because there was not enough outdoor

space for students to follow social distancing rules, or because scheduling and timing may not have been permitted. Therefore, taking students outdoors was also viewed as difficult during the COVID-19 pandemic.

There were, however, some teachers who saw the COVID-19 pandemic as an enabler, and the outdoor conditions as favourable for bringing their students outside. For all the reasons that some teachers saw various barriers to bringing their students outdoors, to other teachers they were viewed as enablers. For example, being outdoors provided cleaner and fresher air for students to breathe, while greater outdoor space allowed for students to move more freely and safely. These teachers did also mention that they were supported by their school, other teachers, parents, and administration to bring students outdoors amidst the pandemic as they all felt it was a safer and healthier option to learning indoors. It would be interesting to study these specific teachers further by examining their personality traits, their connections with nature, and how strongly they possess environmental leadership qualities. This will provide some insight on whether these specific teachers differ from others who viewed the pandemic as a barrier when taking students outdoors.

Teachers believe some changes to the structural barriers are needed for them to feel supported and more confident in taking their students outdoors. The first change would be to have approval and continual support from the administration and from parents. Similar to some teachers, parents and the school's administration might feel that it is safer and more conventional to teach students indoors and inside a classroom. School administrators may feel as though taking students outdoors poses a liability issue, whereas parents might fear for their child's safety and protection if brought outdoors for

educational purposes. However, parents and school administrators are unknowingly dismissing important developmental advancements and nature connections that students experience when they are outdoors (Bourrier et al., 2018). If school board administrators and parents were educated more about the importance of outdoor time for students, they might feel more inclined to support this initiative.

The second change would be to supply teachers with more resources for taking students outdoors. As many schools operate under the financial support of the government, they are limited to operating within their budget. Teachers seem to feel that greater financial support is needed in order to take their students outdoors. Some of the reasons may be for transportation costs, specifically for urban students to venture to more secluded and open areas to learn; or the cost of warm winter clothing for those students who cannot afford it themselves; or purchasing certain pieces of equipment or technology that will be helpful for students when learning outdoors and which might aid in the teachers' outdoor lesson. Thus, more resources might help teachers, parents, and schools feel more equipped and confident in their abilities to safely lead students outdoors for educational purposes.

The third change would be to have more opportunities for teachers to be trained on providing environmental education to students. These training sessions could be a part of mandatory professional development days for in-service teachers, or it could be implemented earlier on in teacher's college for teacher candidates. Programs like the Eco-Mentorship Certificate program at Trent University is an example of a professional development course for teacher candidates that will help these individuals understand more about nature, how our actions can influence natural processes, and how this type of

content can be implemented in the classroom and within different teaching subjects. Thus, it would be beneficial to further explore the types of environmental education training teachers would like to see implemented so they can confidently teach this content and bring their students outdoors for educational purposes.

Lastly, and more so related to the pandemic, is the easing of the COVID-19 restrictions. A shift back to in-person and hands-on learning, lessening mask restrictions, social distancing practices, along with "cohorting" will help some teachers with getting their students outdoors. The COVID-19 rules and regulations put in place to help keep teachers and students safe in a school environment are seen as an extra layer of challenges when taking students outdoors. Thus, removing these restrictions will hopefully provide teachers with more leeway, time, space, and freedom to take their students outdoors for educational purposes. In addition to learning about teachers' perceived competence to teach outdoors in the current study, an exploration of the barriers and enablers for taking students outdoors complimented this understanding.

Trent University's Eco-Mentorship Certificate Program

Passion for the environment and enriched teacher training were two themes that illustrated teachers' motivations to enroll in Trent University's Eco-Mentorship Certificate program. Each theme conveys the fact that teachers are interested in learning more about the natural environment for their own education, but also so they can share that knowledge and connect others with environmental stewardship opportunities. Although less than half of the participants in the current study had either completed the Eco-Mentorship program in the past or planned to enroll in the future, these individuals suggested they gained a positive perspective about nature and felt hopeful about the

outcomes of the program. Upon analyzing the responses, many teachers already seemed to have a passion for the environment and were actively engaging in various forms of pro-environmental behaviours. Thus, this passion for the environment seemed to be a motivator for these teachers to learn more about becoming eco-mentors.

Participant responses also suggested that enriched teacher training, specifically surrounding environmental education is needed at various levels of a teaching career. Teachers who are interested in furthering their understanding of the environment suggested that Eco-Mentoring programs such as the one provided by Trent University are not readily available or advertised widely. For example, some of the participants indicated great interest in enrolling in the Eco-Mentoring Certificate program only after they had read about it in the survey. Moreover, the Eco-Mentorship Certificate program at Trent University is not mandatory and is only advertised to teacher candidates. Thus, in-service teachers could be missing out on an opportunity to enroll in a course like this. These findings suggest that eco-mentorship programs should not only be offered at teacher's college, but they also need to be offered as professional development for in-service teachers. Thus, implementing and mandating more programs such as Trent's Eco-Mentorship program could empower more teachers to teach environmental education, utilize outdoor spaces with their students, and take on more pro-environmental behaviours and leadership overall.

Teacher candidates enrolled in Trent University's Eco-Mentorship Certificate program will benefit greatly from the location of the course. Trent University has many outdoor spaces such as fields, forests, parks, and a river that can be utilized in different ways. Educating teacher candidates on how to use outdoor spaces for educational

purposes while physically being outdoor in nature areas will help them to practice their skills, and as a result grow their competence to teach environmental education and take their students outdoors. This is consistent with the research that suggests finding a safe outdoor space for individuals to practice their skills will help to grow their competency and self-efficacy in outdoor activity (Hackett et al., 2021).

It would, however, be interesting for future research to investigate more about teachers' motivation to take the Eco-Mentoring Certificate program. For example, it would be beneficial to explore the types of mechanisms that motivate teachers to develop a passion for teaching about the environment, and thus interested in completing the Eco-Mentorship Certificate program. This type of information will be helpful when understanding more about the types of teachers who are uninterested in the Eco-Mentorship program. Furthermore, learning more about the program from those who have already completed the Eco-Mentoring program would help inform researchers about what the program does well and what could be altered to make it even more effective and accessible. Additionally, due to the level of interest in Trent's Eco-Mentoring program, it might be worth offering this program to students outside of the education department to broaden the sharing of environmental education and allowing others to learn how to be eco-mentors in their own lives and workplaces.

Limitations and Future Directions

Although this research contributes to the vocational literature and has resulted in new insights regarding teachers' environmental leadership behaviours and outcomes, there are some limitations that need to be considered. The specific sample of teachers was a limitation in the current study. The participants were Canadian teachers, most of whom

were teacher candidates, in their early twenties and were mostly female. Although the study was open to all types of teachers (i.e., current, future, past, and other teachers), a relatively equal representation from each cohort were missing. This impacts the generalizability of the findings and may not accurately represent teachers across different backgrounds and experiences.

There were a few methodological limitations in the current study. Due to time and space, it was not possible to administer a comprehensive battery of psychological well-being measures. Three dimensions of eudemonic well-being were included, however environmental mastery, positive relationships with others, and self-acceptance items were not. In future research it will be useful to administer a variety of or alternate psychological well-being measures. Similarly, it would have been beneficial to have included measures like the General Pro-Environmental Behaviours scale (Karp, 1996) or the Ecology Scale (Maloney et al., 1975) to learn more about participants' pre-existing relationship with environmental behaviours. As well, it would have been informative to measure teachers' satisfaction with their jobs, such as with the Work and Meaning Inventory (Steger et al., 2012) or the Teacher Satisfaction Scale (Ho & Au, 2006). This information might have added to the understanding of how teachers appraise their job and how this may be linked to their environmental leadership motives. Although open-ended qualitative questions were included in the current study, the completion rate for these was relatively low. It is possible that in-person interviews would yield a higher response rate with more in-depth and accurate accounts of teachers' experiences taking students outdoors, the barriers and enablers of this, how the COVID-19 pandemic impacted their teaching, and their motivations for acting as environmental leaders.

Furthermore, the COVID-19 pandemic acted as a limitation for the potential parameters of the study. Following health guidelines, no in-person data collection could occur, nor could in-person meetings or interviews take place (Government of Canada, 2022). Physically going into schools as a visitor was restricted and contacting teachers, school boards, schools, and teacher federations all had to be completed virtually. The advantage of virtual communication was that it saved on time when trying to share the survey. However, a major downfall was that because all communication was virtual some of the requests for the survey to be administered were ignored or it was possible that the email was not seen or read. Furthermore, the time at which the survey was being administered was during a peak time of the COVID-19 pandemic and at the beginning of a school year. Therefore, with many competing tasks filling up teachers' time, such as learning how to teach remotely or adjusting to hybrid teaching, the response rate of the survey might have been lower than if there was no global pandemic occurring. If the current study were to be replicated in the future when the COVID-19 pandemic is no longer a major threat to public health, it would be interesting to see how the study's format could be changed to elicit more in-depth information, what the response rate would be, and if these factors would alter the current findings.

The current study was also a cross-sectional study which poses some potential drawbacks. First, no conclusions can be made about the direct relationships between variables used in the study. Although this type of research allows for inference, the same cannot be said for cause-and-effect relationships. A few of the relationships of interest would have benefited greatly from causal research designs. For example, it would be helpful to know if teachers develop environmental leadership qualities because of their

connection with nature or if they are more connected with nature because they possess qualities of environmental leadership. Understanding the direction would help future research accurately build upon these relationships. Second, as this was an online survey, errors and biases are possible. Participants may not have always reported honestly and accurately to the questions asked. Third, cohort differences may arise within a given dataset. The current study already contained distinct cohorts (i.e., currently teaching, teacher candidates, etc.) which means the study captured different experiences had by teachers. For example, current teachers will have different experiences than teacher candidates who have not formally been teaching in a classroom. However, there are also many other possible cohort effects that can be formed within the data, such as age and location to name a few that could allow for unique findings. Future research could attempt to analyze the various relationships between teachers at different career stages such as current teachers, teacher candidates, retired teachers, and other. Analyzing each cohort separately would help to overcome generalizability issues and provide a deeper understanding of each cohort's environmental leadership qualities, well-being, personality traits, behaviours and actions with their students. It would be interesting to see what the differences and similarities are between each cohort and if the results can predict generational differences, or future or generic trends of teachers' environmental leadership behaviours at different career stages.

The topic of environmental leadership is a growing area of research, mainly in the field of organizational psychology as this type of leadership has positive effects on those around them and for the leader themselves. This study is novel as it reveals that teachers can possess environmental leadership qualities and highlights connections between

teachers who possess this type of leadership and positive personal outcomes. It is typical in leadership research to apply and analyze environmental leadership to a conventional type of workplace leader such as a manager or supervisor; however, confirmation from the current study suggests that it would be beneficial for future research to keep applying environmental leadership to other unconventional types of leaders in hopes of broadening its application and learning more about its individual outcomes.

Future research could also benefit from replicating the current study in an attempt to validate its findings with more diverse participants. This will only deepen the understanding of the complex relationships between teachers' environmental leadership qualities and their own individual outcomes. Furthermore, to gain a more comprehensive understanding of the relationships between teachers acting as environmental leaders, it would be beneficial for future research to examine how their behaviours and actions affect student outcomes such as academic achievement, impressions of nature, and personal development to name a few. This type of study would be novel in its field and would provide an idea of the type of student outcomes that are a result of teachers acting as environmental leaders.

Lastly, many participants suggested a need for more training opportunities to educate teachers about environmental education and how to implement it into their teaching practices. Participants suggested that these training programs be implemented during teachers' college before becoming a full-time teacher (such as Trent University's Eco-Mentorship Certificate program) and as professional development opportunities for in-service teachers. Thus, the demand to gain more knowledge about the environment exists suggesting that it would be beneficial to implement these types of training

programs as soon as possible for teachers. The limited research in this area along with findings from the current study propose that more environmental professional development training programs could help develop a greater competency and versatility among teachers which could affect their behaviours and actions with their students. Therefore, future research would benefit from creating and testing interventions that aim to effectively provide education about environmental stewardship, as well as investigating ways to motivate teachers at each career stage to participate in this type of professional development.

Conclusion

The purpose of this research was to understand how the environmental leadership framework applies to the role of a teacher and to explore its associated individual outcomes, specifically examining impressions of nature, subjective well-being, personality, and perceived competence to teach students outdoors. The results illustrate support for the notion that teachers are indeed leaders; they possess environmental leadership qualities which positively contribute to their well-being, impressions of nature, personality, and perceived competence to teach outdoors which are of value to being an effective teacher. The results of the current study, along with previous research, suggest that continuing to focus on this form of leadership is beneficial and this framework can be applied to other unconventional leadership roles to expand its application. Future studies should examine additional individual outcomes, as well as how teachers who exemplify environmental leadership affect various student outcomes. The current study complements and advances previous research to support environmental leadership being applied to the role of a teacher, which suggests many implications for environmental

education content being more readily adapted into teaching practices and for the shaping of environmental stewardship among young students.

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Appendix A

Informed Consent

WELCOME!

This is the Teacher Experiences Research Study

Informed Consent
The purpose of an informed consent is to ensure that you understand the purpose of the study and the nature of your involvement. The informed consent must provide sufficient information such that you have the opportunity to determine whether you wish to participate in the study.

Research Personnel. The following people are involved in this research project and may be contacted at any time if you have questions or concerns:

Dr. Elizabeth K. Nisbet, Department of Psychology, Trent University
Phone: (705) 748-1011 ext. 7855, elizabethnisbet@trentu.ca

Renée McCutcheon, graduate researcher, Department of Psychology, Trent University
reneemccutcheon@trentu.ca

Purpose. We are interested in your experiences as a teacher or future teacher (taking education courses). We are studying how teachers might have been affected by the COVID-19 pandemic. We are also interested in teachers' personality characteristics, attitudes and behaviours, well-being, and impressions of nature.

Eligibility Requirements. This study is open to all current and former teachers (of pre-school to grade 12), and teacher candidates.

Task Requirements. You will be asked to complete an online survey. There will be questions about your background, personality, impressions of nature, and well-being. We will also ask about your experiences as a future, current, or former teacher. The survey takes about 20 minutes. Those who complete the study can enter a draw for a $200 cash prize. Chances of winning are about 1 in 200. A separate (optional) link to enter your email address will be provided at the end of the survey. The winner will be contacted after the study is completed in August 2022.

Potential Risk/Discomfort. We do not expect there to be discomfort associated with this study. If you do feel uncomfortable, you may choose to not answer any questions. You may also withdraw from the study at any time with no adverse consequences.

Potential Benefits. There are no direct benefits from participating in the study. You are helping us to learn how teachers may differ in their teaching experiences and other characteristics. This study provides you an opportunity to voice your opinions and share your experiences during the pandemic. You are also helping to advance scientific knowledge.

Right to Withdraw. Participation is voluntary. You may withdraw at any time, for any reason, without penalty. If you choose to withdraw, your data will be destroyed. All incomplete responses will be deleted. You may end the study any time by closing your browser window. Once the survey has been completed, withdrawal is not possible. You are not required to answer any question, however we would greatly appreciate your help with this research.

Confidentiality. Your responses on this survey will be anonymous which means that we will not ask you for your name, address, or any identifying information. A separate survey link will be provided for the draw. This link will not be a part of any of your survey responses. Emails for the draw will be destroyed following the draw).

The information you provide in this study will be handled confidentially and stored on the researchers' password-protected computers. As part of publicly funded research, anonymized data will be archived on the Open Science Framework which is a non-profit website dedicated to making research more transparent and available. This anonymized data may be shared with other trusted researchers, as required by professional guidelines. This anonymous data will be retained for at least 2 years and no longer than 10. Only collective scores from the study will be used in publications, reports, presentations, and teaching. No commercial use will be made of this data, and the researchers have no conflict of interest arising from this research. If you are interested in findings of the study, you are welcome to contact the researchers after the study is finished (approximately August 2022).

If you wish to participate in this study, please read the following statements then indicate your consent by clicking on the "Yes, I wish to participate" button below. Thank you!

Please read the following statements carefully:

- I have been informed as to the nature and the purpose of this study as described above.
- I understand that my participation in this study is voluntary and that I am free to withdraw my participation at any point during the study, in which case my data will not be used and will be destroyed.
- I understand that my information will be kept confidential using methods described above.
- I agree to my data being used in the analysis of research collected for the purpose of this study.
- I understand that this research project has received ethical approval from the Trent University Research Ethics Committee (21-26664).
- **I have read and understood this consent form.**
- I am aware that I may contact the university's Research Ethics Board (Jamie Muckle, Phone: 705-748-1011 ext. 7896, Email: jmuckle@trentu.ca) should I have any ethical concerns about this study.

BY CLICKING THE "YES" BUTTON, I ACKNOWLEDGE THAT I HAVE READ AND UNDERSTOOD THIS AGREEMENT, THAT I HAVE EXECUTED THIS AGREEMENT VOLUNTARILY.

Please print out/save a copy of this consent form for your records.

This study has received clearance by the Trent University Research Ethics Board (21-26664).

I have read, understood, and printed/saved a copy of, the above consent form and desire of my own free will to participate in this study.

- ○ **Yes, I wish to participate**
- ○ No thanks

(AFTER ENTERING YOUR RESPONSES, JUST CLICK ON THE "NEXT" BUTTON AT THE BOTTOM-RIGHT OF EACH PAGE TO ADVANCE THE SURVEY)

Demographics

Please tell us a bit about your background.

Do you identify as:

- ○ Female
- ○ Male
- ○ Gender-fluid, non-binary, and/or Two-Spirit
- ○ Prefer to self-describe (add in comment)
- ○ Prefer not to say

What is your age?

Where did you spend the most time while growing up? (Please choose only one response from the options below)

- ○ City (downtown)
- ○ City (suburbs)
- ○ Exurban area (development beyond suburbs)
- ○ Small town
- ○ Rural or farm
- ○ Other (please specify)

Where do you live now?

- ○ Campus residence
- ○ City (downtown)
- ○ City (suburbs)
- ○ Exurban area (development beyond suburbs)
- ○ Small town
- ○ Rural or farm
- ○ Other (please specify)

Using Census categories of race and ethnicity, are you ...

- ○ Indigenous (First Nations/Inuit/Métis)
- ○ Arab
- ○ Black
- ○ Caucasian
- ○ Chinese
- ○ Filipino
- ○ Japanese
- ○ Korean
- ○ Latin American
- ○ South Asian (e.g., East Indian, Pakistani, Sri Lankan, etc.)
- ○ Southeast Asian (e.g., Vietnamese, Cambodian, Laotian, Thai, etc.)
- ○ West Asian (Iranian, Afghan, etc.)
- ○ Multiple Ethnicities
- ○ Other Ethnicity (please specify)
- ○ Prefer not to answer

What is the current stage of your teaching career?

- ○ Future teacher (enrolled in teacher education program or courses)
- ○ Currently teaching
- ○ Retired or former teacher
- ○ Other (please explain)

What is your current work status? Check all that apply.

- ☐ Full time

- [ ] Part time
- [ ] Contract
- [ ] Sabbatical
- [ ] Other

What type of school do you work at?

- [ ] Public school
- [ ] Private/Independent school
- [ ] Montessori school
- [ ] Catholic school
- [ ] Forest school
- [ ] French Language
- [ ] Other

In what type of school setting do you teach?

Urban (city center)	Suburban	Rural
○	○	○

What grade(s) do/did you teach (or anticipate teaching)? Select all that apply.

- [ ] Pre-School
- [ ] Kindergarten
- [ ] Elementary School (1-6)
- [ ] Junior High School (7-8)
- [ ] High School (9-12)

What are your teaching specialties/subjects (actual or anticipated)? If you do not have any, please leave this question blank.

Have you ever taught an environmental education course or class?

- ○ No
- ○ Yes (please explain)

Have you ever incorporated any environmental content into your courses?

- ○ No
- ○ Yes

EcoMentor

Are you a teacher candidate enrolled in Trent University's School of Education?

Yes	No
○	○

Have you ever enrolled in the Eco-Mentorship Certificate program at Trent University?

- ○ Yes - Currently enrolled

- ○ Yes - Completed program in the past
- ○ Plan to enroll in the future
- ○ Not enrolled and do not plan to

Please tell us a bit about your interest in the Eco-Mentorship Certificate program.

What motivated you to get involved with the program? What has been your experience with the program (or what do you hope it to be)?

Perceived Competence

Please respond to each of the following items in terms of how true it is for you with respect to your perceived ability to teach outdoors.

	Not at all true			Somewhat true			Very true
I am confident in my ability to deliver outdoor experiences	○	○	○	○	○	○	○
I am capable of planning and delivering outdoor sessions	○	○	○	○	○	○	○
I am able to plan my own outdoor learning experiences linked to the curriculum	○	○	○	○	○	○	○
I am able to meet the challenge of delivering meaningful lessons in nature	○	○	○	○	○	○	○

Teacher Barriers

What are some of the barriers or problems that make it difficult for teachers to take their students outside? Select all that apply.

- ☐ Time
- ☐ Space
- ☐ Safety
- ☐ Managing students' behaviour
- ☐ Adequate clothing
- ☐ Weather
- ☐ Expectations of colleagues or advisors (e.g., associate teachers)
- ☐ Other

Have you noticed or experienced any new barriers or problems for taking students outdoors that have come up since the start of the pandemic? Please list and explain them below.

Keeping in mind the challenges you indicated above, what would enable teachers to take students outside? (ex., resources, approval from administration, etc.)

Since the pandemic started, some teachers have seen the outdoor environment as a safer classroom. Have you used the outdoor environment as a classroom since the pandemic started?

- ○ No
- ○ Yes. Please explain your experience.

Do you intend to continue to use the outdoor environment as a classroom?

Yes	No
○	○

ETFL_TLI_A

Thinking about your role as a teacher and/or leader, please respond to the statements below by indicating how often you have engaged in each of the specified behaviours.

	Never		Sometimes		Always
I act as an environmental role model	○	○	○	○	○
I motivate others (e.g., students/peers/colleagues) to behave in an environmentally friendly manner	○	○	○	○	○
I show a commitment to improving environmental sustainability	○	○	○	○	○
I encourage others (e.g., students/peers /colleagues) to think about environmental issues in different ways	○	○	○	○	○
I actively show that I value the natural environment	○	○	○	○	○
I am open to new ideas about ways to improve my environmental practice	○	○	○	○	○
I recognize others' (e.g., students/peers /colleagues) ability to engage in environmental practices	○	○	○	○	○
	Never		Sometimes		Always
I recognize others' (e.g., students/peers /colleagues) contributions to environmental sustainability	○	○	○	○	○
I spend time helping others (e.g., students/peers /colleagues) develop skills that contribute to environmental sustainability	○	○	○	○	○
I am passionate about improving the future state of the natural environment	○	○	○	○	○
I encourage others (e.g., students/peers /colleagues) to think creatively about improving their environmental performance	○	○	○	○	○
I am optimistic about the future of our planet	○	○	○	○	○
I lead by "doing", rather than simply by "telling"	○	○	○	○	○
I am a good role model to follow when it comes to acting in environmental ways	○	○	○	○	○
	Never		Sometimes		Always

	Never		Sometimes		Always
I lead by example when it comes to environmental stewardship	○	○	○	○	○
I encourage collaboration among others (e.g., my students/peers/colleagues) to work towards the sustainability of our planet	○	○	○	○	○
I encourage others (e.g., my students/peers /colleagues) to be "team players" when it comes to behaving in an environmentally conscious manner	○	○	○	○	○
I get others (e.g., my students/peers/colleagues) to work together to strive for the same goal of environmental protection	○	○	○	○	○
I help to develop a team attitude and spirit among others (e.g., my students/peers/colleagues) when it comes to environmental stewardship	○	○	○	○	○

Personality

Now we have some questions about your personality and well-being.

For each of the characteristics listed below, rate how descriptive each characteristic is of you.

I see myself as someone who ...

	Disagree strongly	Disagree a little	Neither Agree nor Disagree	Agree a little	Agree strongly
Is talkative	○	○	○	○	○
Tends to find fault with others	○	○	○	○	○
Does a thorough job	○	○	○	○	○
Is depressed, blue	○	○	○	○	○
Is original, comes up with new ideas	○	○	○	○	○
Is reserved	○	○	○	○	○
Is helpful and unselfish with others	○	○	○	○	○
Can be somewhat careless	○	○	○	○	○

	Disagree strongly	Disagree a little	Neither Agree nor Disagree	Agree a little	Agree strongly
Is relaxed, handles stress well	○	○	○	○	○
Is curious about many different things	○	○	○	○	○
Is full of energy	○	○	○	○	○
Starts quarrels with others	○	○	○	○	○
Is a reliable worker	○	○	○	○	○
Can be tense	○	○	○	○	○
Is ingenious, a deep thinker	○	○	○	○	○
Generates a lot of enthusiasm	○	○	○	○	○

	Disagree strongly	Disagree a little	Neither Agree nor Disagree	Agree a little	Agree strongly
Has a forgiving nature	○	○	○	○	○
Tends to be disorganized	○	○	○	○	○
Worries a lot	○	○	○	○	○
Has an active imagination	○	○	○	○	○
Tends to be quiet	○	○	○	○	○
Is generally trusting	○	○	○	○	○
Tends to be lazy	○	○	○	○	○
Is emotionally stable, not easily upset	○	○	○	○	○

	Disagree strongly	Disagree a little	Neither Agree nor Disagree	Agree a little	Agree strongly
Is inventive	○	○	○	○	○
Has an assertive personality	○	○	○	○	○
Can be cold and aloof	○	○	○	○	○
Perseveres until the task is finished	○	○	○	○	○

	Disagree strongly	Disagree a little	Neither Agree nor Disagree	Agree a little	Agree strongly
Can be moody	○	○	○	○	○
Values artistic, aesthetic experiences	○	○	○	○	○
Is sometimes shy, inhibited	○	○	○	○	○
Is considerate and kind to almost everyone	○	○	○	○	○
	Disagree strongly	Disagree a little	Neither Agree nor Disagree	Agree a little	Agree strongly
Does things efficiently	○	○	○	○	○
Remains calm in tense situations	○	○	○	○	○
Prefers work that is routine	○	○	○	○	○
Is outgoing, sociable	○	○	○	○	○
Is sometimes rude to others	○	○	○	○	○
Makes plans and follows through with them	○	○	○	○	○
Gets nervous easily	○	○	○	○	○
Likes to reflect, play with ideas	○	○	○	○	○
	Disagree strongly	Disagree a little	Neither Agree nor Disagree	Agree a little	Agree strongly
Has few artistic interests	○	○	○	○	○
Likes to cooperate with others	○	○	○	○	○
Is easily distracted	○	○	○	○	○
Is sophisticated in art, music, or literature	○	○	○	○	○

PANAS

This scale below consists of a number of words that describe different feelings and emotions. Read each item and then indicate to what extent you feel this way **in general**.

	Very slightly or not at all	A little	Moderately	Quite a bit	Extremely
Interested	○	○	○	○	○
Distressed	○	○	○	○	○
Excited	○	○	○	○	○
Upset	○	○	○	○	○
Strong	○	○	○	○	○
Guilty	○	○	○	○	○
Scared	○	○	○	○	○
Curious	○	○	○	○	○
	Very slightly or not at all	A little	Moderately	Quite a bit	Extremely
Hostile	○	○	○	○	○
Enthusiastic	○	○	○	○	○
Proud	○	○	○	○	○
Irritable	○	○	○	○	○
Alert	○	○	○	○	○
Ashamed	○	○	○	○	○
Inspired	○	○	○	○	○
In awe	○	○	○	○	○
	Very slightly or not at all	A little	Moderately	Quite a bit	Extremely
Nervous	○	○	○	○	○
Determined	○	○	○	○	○
Attentive	○	○	○	○	○
Jittery	○	○	○	○	○
Active	○	○	○	○	○

	Very slightly or not at all	A little	Moderately	Quite a bit	Extremely
Afraid	○	○	○	○	○
Fascinated	○	○	○	○	○
Joyous	○	○	○	○	○

	Very slightly or not at all	A little	Moderately	Quite a bit	Extremely
Sad	○	○	○	○	○
Content	○	○	○	○	○
Anxious	○	○	○	○	○
Happy	○	○	○	○	○

PWBI

The following set of questions deals with how you feel about yourself and your life. Please indicate your present agreement or disagreement with each statement. Please remember that there are no right or wrong answers.

	Strongly disagree	Disagree somewhat	Disagree slightly	Agree slightly	Agree somewhat	Strongly agree
I am not afraid to voice my opinions, even when they are in opposition to the opinions of most people	○	○	○	○	○	○
I am not interested in activities that will expand my horizons	○	○	○	○	○	○
I live life one day at a time and don't really think about the future	○	○	○	○	○	○
My decisions are not usually influenced by what everyone else is doing	○	○	○	○	○	○
I don't want to try new ways of doing things--my life is fine the way it is	○	○	○	○	○	○
I tend to focus on the present, because the future nearly always brings me problems	○	○	○	○	○	○
I tend to worry about what other people think of me	○	○	○	○	○	○
I think it is important to have new experiences that challenge how you think about yourself and the world	○	○	○	○	○	○

	Strongly disagree	Disagree somewhat	Disagree slightly	Agree slightly	Agree somewhat	Strongly agree
My daily activities often seem trivial and unimportant to me	○	○	○	○	○	○
Being happy with myself is more important to me than having others approve of me	○	○	○	○	○	○
When I think about it, I haven't really improved much as a person over the years	○	○	○	○	○	○
I don't have a good sense of what it is I'm trying to accomplish in life	○	○	○	○	○	○
I tend to be influenced by people with strong opinions	○	○	○	○	○	○
I have the sense that I have developed a lot as a person over time	○	○	○	○	○	○
I used to set goals for myself, but that now seems like a waste of time	○	○	○	○	○	○
I have confidence in my opinions, even if they are contrary to the general consensus	○	○	○	○	○	○

	Strongly disagree	Disagree somewhat	Disagree slightly	Agree slightly	Agree somewhat	Strongly agree
I do not enjoy being in new situations that require me to change my old familiar ways of doing things	○	○	○	○	○	○
I enjoy making plans for the future and working to make them a reality	○	○	○	○	○	○
It's difficult for me to voice my own opinions on controversial matters	○	○	○	○	○	○
For me, life has been a continuous process of learning, changing, and growth	○	○	○	○	○	○
I am an active person in carrying out the plans I set for myself	○	○	○	○	○	○
I often change my mind about decisions if my friends or family disagree	○	○	○	○	○	○
I gave up trying to make big improvements or changes in my life a long time ago	○	○	○	○	○	○
Some people wander aimlessly through life, but I am not one of them	○	○	○	○	○	○

	Strongly disagree	Disagree somewhat	Disagree slightly	Agree slightly	Agree somewhat	Strongly agree
	Strongly disagree	Disagree somewhat	Disagree slightly	Agree slightly	Agree somewhat	Strongly agree
I judge myself by what I think is important, not by the values of what others think is important	○	○	○	○	○	○
There is truth to the saying you can't teach an old dog new tricks	○	○	○	○	○	○
I sometimes feel as if I've done all there is to do in life	○	○	○	○	○	○

Vitality

Please respond to each of the following statements by indicating the degree to which the statement is true for you **in general** in your life. Use the scale below:

	Not At All True			Somewhat True			Very True
I feel alive and vital	○	○	○	○	○	○	○
Sometimes I feel so alive I just want to burst	○	○	○	○	○	○	○
I have energy and spirit	○	○	○	○	○	○	○
I look forward to each new day	○	○	○	○	○	○	○
I nearly always feel alert and awake	○	○	○	○	○	○	○
I feel energized	○	○	○	○	○	○	○
Please select Very True for this item to help us know you are still understanding the survey	○	○	○	○	○	○	○

NR

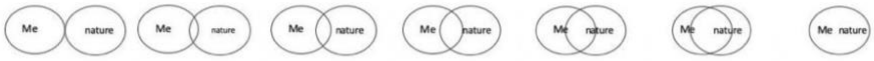
For each of the following, please rate the extent to which you agree with each statement, using the scale below. Please respond as you really feel, rather than how you think "most people" feel.

	Disagree strongly	Disagree a little	Neither Agree or Disagree	Agree a little	Agree strongly
I enjoy being outdoors, even in unpleasant weather	○	○	○	○	○
Some species are just meant to die out or become extinct	○	○	○	○	○
Humans have the right to use natural resources any way we want	○	○	○	○	○
My ideal vacation spot would be a remote, wilderness area	○	○	○	○	○
I always think about how my actions affect the environment	○	○	○	○	○
I enjoy digging in the earth and getting dirt on my hands	○	○	○	○	○
	Disagree strongly	Disagree a little	Neither Agree or Disagree	Agree a little	Agree strongly
My connection to nature and the environment is a part of my spirituality	○	○	○	○	○
I am very aware of environmental issues	○	○	○	○	○
I take notice of wildlife wherever I am	○	○	○	○	○
I don't often go out in nature	○	○	○	○	○
Nothing I do will change problems in other places on the planet	○	○	○	○	○
I am not separate from nature, but a part of nature	○	○	○	○	○
	Disagree strongly	Disagree a little	Neither Agree or Disagree	Agree a little	Agree strongly
The thought of being deep in the woods, away from civilization, is frightening	○	○	○	○	○
My feelings about nature do not affect how I live my life	○	○	○	○	○
Animals, birds and plants should have fewer rights than humans	○	○	○	○	○
Even in the middle of the city, I notice nature around me	○	○	○	○	○
My relationship to nature is an important part of who I am	○	○	○	○	○
Conservation is unnecessary because nature is strong enough to recover from any human impact	○	○	○	○	○

	Disagree strongly	Disagree a little	Neither Agree or Disagree	Agree a little	Agree strongly
	Disagree strongly	Disagree a little	Neither Agree or Disagree	Agree a little	Agree strongly
The state of non-human species is an indicator of the future for humans	○	○	○	○	○
I think a lot about the suffering of animals	○	○	○	○	○
I feel very connected to all living things and the earth	○	○	○	○	○

INS

Please select the image below that best describes your relationship with the natural environment. How interconnected are you with nature?



○ ○ ○ ○ ○ ○ ○

Env Concern

People around the world are generally concerned about environmental problems because of the consequences that result from harming nature. However, people differ in the consequences that concern them the most.

Please rate each of the following items from 1 (not important) to 7 (supreme importance) in response to the question: **I am concerned about environmental problems because of the consequences for...**

	Not important 1	2	3	Neutral 4	5	6	Supreme importance 7
Plants	○	○	○	○	○	○	○
Marine life	○	○	○	○	○	○	○
Birds	○	○	○	○	○	○	○
Animals	○	○	○	○	○	○	○
Me	○	○	○	○	○	○	○
My lifestyle	○	○	○	○	○	○	○
My health	○	○	○	○	○	○	○
My future	○	○	○	○	○	○	○
People in my country	○	○	○	○	○	○	○
All people	○	○	○	○	○	○	○
Children	○	○	○	○	○	○	○
My children	○	○	○	○	○	○	○

Debriefing and Draw

Debriefing Form

Thank you for taking the time to participate in our study! The main goal of this research is to examine the different characteristics that teachers possess. We are also interested in learning more about teachers' well-being and attitudes towards the environment. We hope to learn about the challenges teachers faced during the COVID-19 pandemic, and how this might have impacted outdoor or enviromental education. This research will help us to better understand what supports teachers need.

Environmental education may add to a teacher's responsibilities. This is also a chance to discuss real world problems such as climate change or environmental health. We hope to learn more about teachers' different interests and what inspires them. This may help us understand how teachers can encourage connectedness with nature and the benefits that brings.

Teachers are role models and may have qualities similar to other types of leaders. Your responses will help us to learn more about this and how the pandemic may have affected teachers' lives. We also hope to better understand the experiences of teachers and the barriers they may face when teaching environmental stewardship in and outside of the classroom.

Why is this important to scientists or the general public?

The environment and climate change are important issues for researchers and the public. Teaching environmental topics or teaching in different types of environments creates challenges. This project will examine teachers' experiences and identify what supports they may need. This research may help school administrators and decision makers to better understand how to include the natural environment in curriculum.

Where can I learn more?

The resources below may be of interest if you want to learn more about teaching outdoors and connecting children with nature:

Pathways to Stewardship & Kinship

Back to Nature Network
Do Lessons in Nature Boost Classroom Engagement?

Contact Information

The following people are leading this research project and may be contacted at any time if you have any further questions about the project, what it means, or concerns about how it was conducted:

Renée McCutcheon, graduate researcher, Department of Psychology, Trent University, reneemccutcheon@trentu.ca
Dr. Elizabeth K. Nisbet, Department of Psychology, Trent University, (705) 748-1011, ext. 7855, elizabethnisbet@trentu.ca

Should you have any ethical or other concerns about this research then please contact Trent University's Ethics Committee for Psychological Research: Jamie Muckle, Phone: 705-748-1011 ext. 7896, Email: jmuckle@trentu.ca.

We thank you for your contribution, as this research would not be possible without willing participants like you. Be assured that any information that you have provided will be treated with the confidentiality in that there will be no public record which could associate you with this study.

Thank you again for helping us with our research!

Your responses have been recorded.
Thank you again for helping us with this research!

Do you want to be entered into the draw for the $200 cash prize? This will lead you to a separate survey, where you may enter your email for the draw. Your email is in no way linked to your survey responses.

- ○ **Yes, please.**
  Click "Next" to be taken to the separate prize draw entry page.
- ○ **No thank you.**
  Click "Next" or simply close your browser to end the survey.

Appendix B

Email Inquiry to Schools and Teachers Associations

Hello,

I am a Master's student at Trent University (Peterborough, Ontario) and I am currently conducting research for my Master's thesis, which is focusing on teachers and their experiences during the pandemic, as well as examining their personality characteristics, well-being and impressions of nature.

I was wondering if you could be so kind as to circulate the attached poster, which includes a link and QR code to a short survey that future, current and past teachers can anonymously complete? The perk in completion is a chance to win a $200 cash prize.

I understand this may be a low priority item for teachers right now, but any help is much appreciated. I would be happy to provide you with the results once data collection has ended, and if you folks are interested.

I hope you are all easing into the new school year! Please feel free to email me anytime if you have any questions, comments, or concerns.

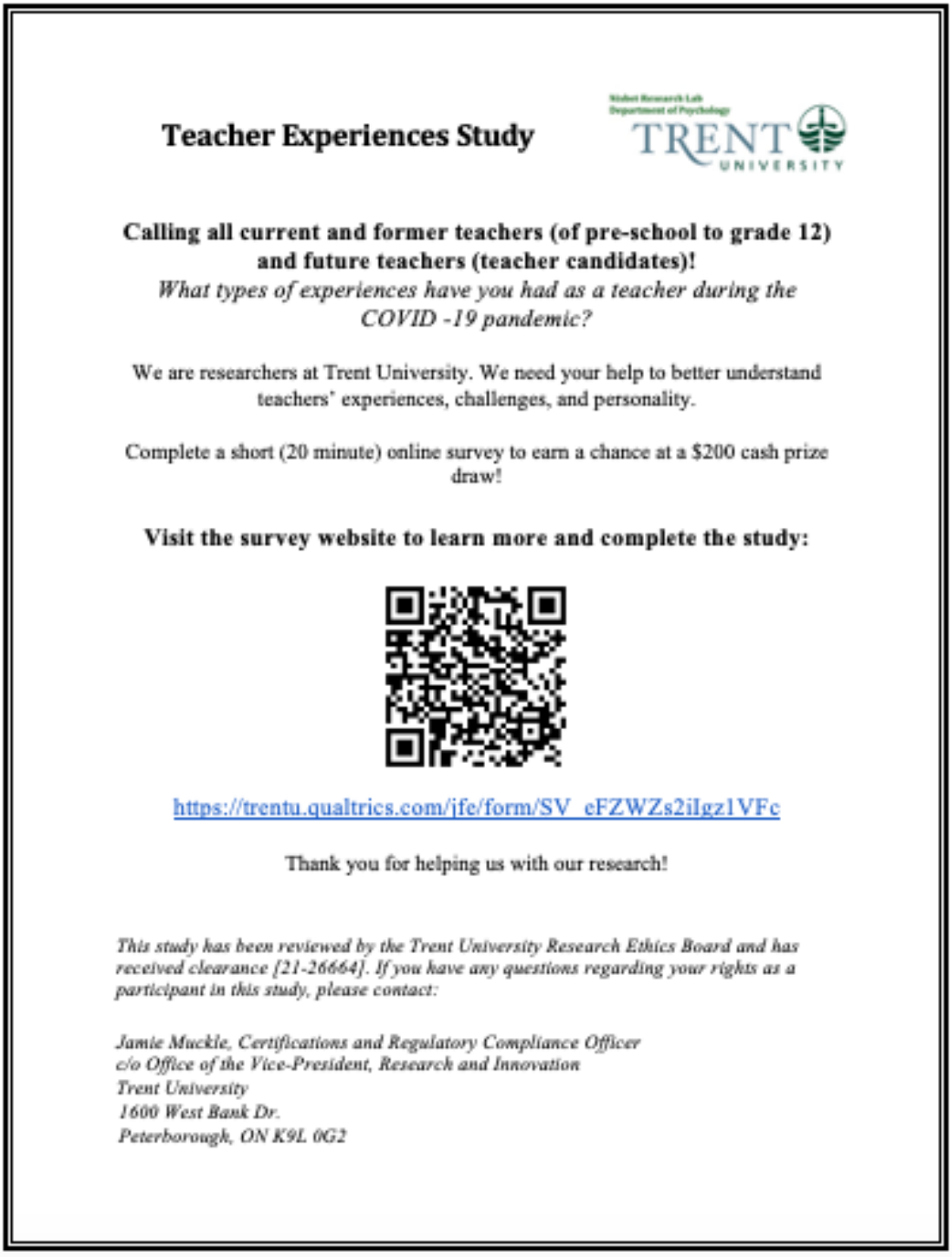
Many thanks!

Cheers,

Researcher name and contact information

Figure B1

Teacher Advertisement Included in Email Inquiry



Teacher Experiences Study

Calling all current and former teachers (of pre-school to grade 12) and future teachers (teacher candidates)!

What types of experiences have you had as a teacher during the COVID -19 pandemic?

We are researchers at Trent University. We need your help to better understand teachers' experiences, challenges, and personality.

Complete a short (20 minute) online survey to earn a chance at a $200 cash prize draw!

Visit the survey website to learn more and complete the study:

https://trentu.qualtrics.com/jfe/form/SV_eFZWZs2ilgz1VFc

Thank you for helping us with our research!

This study has been reviewed by the Trent University Research Ethics Board and has received clearance [21-26664]. If you have any questions regarding your rights as a participant in this study, please contact:

Jamie Muckle, Certifications and Regulatory Compliance Officer
c/o Office of the Vice-President, Research and Innovation
Trent University
1600 West Bank Dr.
Peterborough, ON K9L 0G2