

Victimization, Physical Activity, and Affective Outcomes During Recess in Students With and Without Disabilities

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Research has revealed that school recess is often challenged by a social landscape that can undermine opportunities for positive interactions and meaningful play. This study assessed differences in levels of inside and outside recess enjoyment, positive and negative affect, peer belongingness, victimization, and physical activity between students with and without a disability. The sample consisted of 337 students in grades 4 through 8 from 14 elementary schools in southern Ontario, Canada. Of these, 31 students reported having a disability and 306 reported none. Data was collected through a 36-item online survey. Results revealed that those with a disability scored significantly ($p < .01$) higher on measures of enjoyment of inside recess, negative affect, and victimization while significantly lower in positive affect and outside recess enjoyment, peer belongingness, and physical activity. Children with a disability may benefit from a recess climate with more psychosocial supports.

La recherche a révélé que les récréations à l'école sont souvent modelées par un paysage social qui peut miner les possibilités d'entreprendre des interactions positives et les occasions de jeu significatif. Cette étude a évalué les différences entre les élèves avec un handicap et les élèves sans handicap quant aux facteurs suivants : le niveau de plaisir ressenti pendant les récréations à l'intérieur et les récréations à l'extérieur; les affects positifs and négatifs; le sentiment d'appartenance au groupe de pairs; la victimisation; et l'activité physique. Notre échantillon regroupait 337 élèves de la 4e à la 8e année provenant de 14 écoles élémentaires dans le sud de l'Ontario, au Canada. Parmi ceux-ci, 31 élèves ont déclaré avoir un handicap et 306 ont indiqué ne pas avoir de handicap. Les données ont été recueillies par un sondage en ligne à 36 questions. Les résultats indiquent que la cote pour les élèves avec un handicap était significativement supérieure ($p < .01$) pour les mesures portant sur le plaisir ressenti pendant les récréations à l'intérieur, l'affect négatif et la victimisation. Leur cote était significativement inférieure pour les mesures portant sur l'affect négatif, le plaisir ressenti pendant les récréations à l'extérieur, le sentiment d'appartenance au groupe de pairs et l'activité physique. Les enfants ayant un handicap pourraient bénéficier de récréations dont le milieu présente plus de supports psychosociaux.

Similar to the United States, the United Kingdom, and many other countries, recess in Canadian elementary and middle schools is conventionally understood as a “free” part of the school day that allows children a break from instruction to catch up with friends and engage in physically

active play, free from classroom rules and routines (McNamara, Vaantaja, Dunseith, & Franklin, 2015; Blatchford & Baines, 2006; Pellegrini & Bohn, 2005). It is generally accepted that these regularly scheduled active breaks will benefit both academic success and overall well-being by reducing stress, boosting circulation, enhancing neurological activity, and increasing energy. Moreover, recess is considered to be an important context for social development as it provides opportunities to engage with peers and develop supportive relationships (Barros, Silver, & Stein, 2009; Centers for Disease Control and Prevention, 2010; McNamara, Colley, & Franklin, 2015; Osterman, 2000; Pellegrini & Bohn, 2005; Ramstetter, Murray, & Garner, 2010).

There is, however, a considerable body of research in Canada and abroad that indicates that these benefits may not be realized. For example, several Canadian studies have consistently documented concerns about relational exclusion, isolation, victimization, and bullying during recess (Craig & Pepler, 1997; McNamara, Gibson, Lodewyk, Spadafora, & Lakman, 2018; McNamara, Lodewyk, & Franklin, 2018; McNamara et al., 2014; McNamara, 2013; Vallaincourt et al., 2010). As well, several Canadian studies indicate that fears of injuries and liability have led to strict rules and barren-play environments that further compromise opportunities for meaningful, inclusive, physically active-play (Brussoni et al., 2015; McNamara et al., 2015; ParticipACTION, 2018). Canada is not alone in these challenges, as similar findings have long been documented in the United States (Barros et al., 2009; Nansel et al., 2001; Ramstetter et al., 2010; Robert Wood Johnson Foundation, 2010; Zumbrunn, Doll, Dooley, LeClair, & Wimmer, 2013). In the Canadian province of Ontario, there is a drive towards a more inclusive and equitable education environment. One way is Ontario's Education Equity Action Plan (Ontario Ministry of Education, 2017) that contends to eliminate "discriminatory practices, systemic barriers and bias from schools and classrooms to support the potential for all students to succeed" (p. 4). Many schools have made tremendous progress in creating inclusive environments. However, it appears the setting of recess is often overlooked in school improvement efforts (McNamara et al., 2015).

Although all children are likely to be susceptible to relational harm during recess, for this study we investigated the recess experiences of children who have a disability. There is a surprising lack of attention to this topic in the scholarly literature, yet research indicates that children with disabilities are often isolated during play activities and experience exclusion and victimization more frequently than their peers without disabilities (Boddy, Downs, Knowles, & Fairclough, 2015; Bourke & Burgman, 2010; Lindsay & McPherson, 2012). Several studies have found that children with disabilities are typically viewed by other children as different, which makes them more vulnerable to social rejection, exclusion, and bullying (Bourke & Burgman, 2010; Lindsay & McPherson, 2012). When people with disabilities are excluded from social spaces, it promotes feelings of abnormality and a lack of belonging (Kitchin, 1998).

This is problematic because it is now well-established in the scholarly literature that feelings of acceptance and belonging are fundamental psychological needs that influence overall well-being and life trajectories (Baumeister & Leary, 2005; Umberson & Karas-Montez, 2010). Moreover, in the school environment, considerable research has indicated that students' experiences of acceptance and belonging influence a range of behaviors that shape school success, such as, academic motivation, school engagement, interest in school, collegiality, and school retention (Osterman, 2000). Conversely, a lack of acceptance and belongingness are associated with a range of negative feelings, including loneliness, anxiety, and depression that compromise children's ability to engage positively with schoolwork and peers (Baumeister & Leary, 2005; Osterman, 2000).

Research indicates that children with disabilities experience a higher anxiety and depression (Bourke & Burgman, 2010, Nowicki et al., 2014). Our concern is that, because children spend a considerable portion of their childhoods in school, the children with disabilities who experience constant exclusion from play spaces during recess are at risk for cumulative disadvantage, including a lag in their development of effective social skills; in turn, this can invite continued social exclusion and isolation (DeRosier, Kupersmidt, & Patterson, 1994; Nowicki, Brown, & Stepien, 2014). Moreover, we know little about the ways in which schools support (or do not support) students with disabilities during recess, and our study is intended provide further direction for research and practice.

The Social Experience of Recess

In Canada, recess from the students' perspective, is primarily a social space (McNamara et al., 2018b). It is often the only chance in their entire school day that they can connect with peers and engage in collaborative play (McNamara et al., 2015). There are several disabilities that, by definition, involve difficulty recognizing, understanding, and responding to social cues (American Psychiatric Association [APA], 2013) which can make social interactions challenging and, in turn, compromise their ability to connect and feel accepted in their community. These include attention-deficit/ hyperactivity disorder (ADHD), autism, communication disorders, hearing impairments, learning disabilities, and/or social processing deficits (APA, 2013; Kavale & Forness, 1996; Lavoie, 2005; Nowicki et al., 2014). For example, ADHD is one of the most common childhood biopsychosocial conditions, affecting 5-10% of children (Heiman, Olenik-Shemesh, & Eden, 2015; Seymour, Mostofsky, & Rosch, 2016). For example, ADHD is most prevalent in school-aged children (Daley & Birchwood, 2010) and is categorized by the presence of persistent inattention, hyperactivity and/or impulsivity making it difficult to stay on topic of conversation and take conversational turns with peers (Corkum, Corbin, & Pike, 2010; Daley & Birchwood, 2010; Polanczyk, Lima, Horta, Biederman, & Rohde, 2007; Seymour et al., 2016). In addition, because of the hyperactive and impulsive tendencies of many children with ADHD, excessive chatter and frequent interruptions are common (Corkum et al., 2010). The main area of social difficulty for children with ADHD is peer-to-peer interactions, most pointedly occurring during play (Wilkes-Gillan, Bundy, Cordier, Lincoln, & Chen, 2016).

Children with physical disabilities also face barriers to engaging in play (Dunn & Moore, 2005; Woolley, Armitage, Bishop, Curtis, & Ginsborg, 2005, 2006). In their review of school playgrounds in Toronto, Yantzi, Young, and Mckeever (2010) reported that the organization of space, types of equipment, and the attributes of the landscape contribute to exclusion and marginalization of physically disabled children. The authors found that surface materials such as woodchips, soft padding, raised borders, and sand make it difficult, if not impossible, for children with mobility impairments to move around. A lack of ramps and transfer systems prevent children with physical disabilities from accessing play structures. Therefore, when the play landscape is impossible to enter, children are excluded from this critically important social space.

The Current Study

Due to the growing awareness that recess is a very important influence on children's overall psychosocial trajectories, and concerns that the traditional layout of recess may render children

with disabilities more susceptible to disadvantage, the goal of this study was to better understand differences in children's social experiences during recess between students with and without a disability. We leveraged information from an online survey that we developed for the purposes of broadly examining recess as a holistic unit of analysis (McNamara et al., 2018b). The study adopts the framework of cognitive mediation theory (Doyle, 1997). Cognitive mediation theory asserts that the role of contextual and personal differences (e.g., having a disability or not) on behavioral and emotional outcomes (e.g., recess physical activity and enjoyment) is often related to one's social experiences (e.g., peer belongingness and victimization) and feelings (e.g., positive and negative affect). This theory has been leveraged in a variety of educational settings (Doyle, 1997; Solmon, 2006) and we apply it to the context of recess.

The specific objectives for the study were twofold. First, we aimed to determine differences between students with and without a disability in levels of recess enjoyment (both inside and outside); positive and negative affect; and outdoor recess peer belongingness, victimization, and physical activity. Second, we wanted to uncover the predictions of general enjoyment of indoor and outdoor recess by these constructs. Although the focus of the study was to discover differences in outdoor and indoor recess enjoyment in those with and without a disability, a secondary objective was to assess whether outdoor recess affect, victimization, peer belongingness, and enjoyment would predict levels of indoor recess enjoyment. In other words, are students (with or without a disability) more likely to enjoy indoor recess if they experience lower levels of physical activity, affect, and peer belongingness during outdoor recess? Previous research has revealed that positive physically active play is significantly more likely during outdoor recess (Tran, Clark, & Racette, 2013). Further, indoor recess is an important consideration in many parts of Canada as there tend to be a considerable number of "inclement weather" days in the country. According to Environment Canada (2013) there are, on average, 14 precipitation days per month for the months September through June in southern Ontario where the study populations were located. Typically, on inclement weather days, children stay inside to play quietly at their desk in their respective classrooms (McNamara et al., 2015).

Method

Participants

Participants in this study were 355 students in grades 4 through 8 from 14 elementary schools in southern Ontario. These students completed a confidential online survey of 36 items related to their recess experiences. Some of the items were not analyzed in this study. Following protocol recommended by Tabachnick and Fidell (2006), outliers ($n = 5$) were identified and deleted using excessive Mahalanobis distance values, and any randomly missing values were replaced with the series mean. One item asked the students to identify if they had a disability by checking either "yes" or "no" or "I choose not to say." On this item, 31 students answered "yes" (20 boys and 11 girls), 306 replied "no" (136 boys and 170 girls), and 13 chose not to say. Those in this latter group were omitted from the study; hence, the final sample was 337 participants (156 boys and 181 girls) from grades 4 ($n = 59$), 5 ($n = 82$), 6 ($n = 35$), 7 ($n = 79$), and 8 ($n = 82$). If respondents answered "yes" to the disability item they were prompted to list their disability. The revealed disabilities included ADHD ($n = 11$), Asperger's ($n = 3$), Autism ($n = 3$), and one each for speech impediment, attention deficit disorder, down syndrome, physical disability, social

anxiety, central auditory processing disorder, dyslexia, asthma, writing disability, and tuberous sclerosis. The four students who did not list their disability were included in the study because listing the specific disability was optional. Although age was not part of the collected data, Canadian school children are on average aged 9 in grade four, 10 in grade five, 11 in grade six, 12 in grade seven, and 13 in grade eight.

Procedure

The university ethics committee and the participating school board's ethics committee approved the study. After obtaining approval from the school principal and teacher, a consent form was sent home with all students in grades 4-8 explaining details about the study and requesting parent's permission for their child's participation. Only students with parent approval participated in the study. The consent form included a request for parent(s) to indicate if their child had a disability, a health problem, a mobility limitation, a need to use special equipment, and/or a plan to receive special education services. They were then asked to select "Yes," "No," or "I choose not to say." If they selected "Yes," parents were prompted to provide a written description. Because the survey was intended to be anonymous, this information was for the student to refer to during the survey administration in the event that they were unsure—and if so, they could refer to their consent form if necessary.

Under the supervision of the lead researcher, the students accessed the online survey via computers in the school library or computer lab. All consenting students had their consent forms directly in front of them during the administration of the survey. To emphasize some important details from the consent form, students were verbally reminded by the lead researcher just prior to administering the survey that participation in the study was voluntary and that students could decline to answer any questions, skip any part of the survey, or withdraw from it at any time without any penalty. The lead researcher also mentioned that there would be a question on disabilities and verbally provided students examples of disabilities such as impairments, health problems, mobility limitations, and the need for special equipment and/or special education services. The surveys were completed via [surveymonkey.com](https://www.surveymonkey.com) and no cases violated its homeland (United States) security legislative measures. Finally, the data was condensed into an Excel file and extracted to the Statistical Package for the Social Sciences (SPSS; version 22) for statistical analysis.

Measures

Demographics, enjoyment, and physical activity level. Participants were asked several demographic questions on the survey related to their grade, sex, school name and city, and any disabilities ("Do you have a disability"?). If they responded affirmatively to the last item, they were asked to list their type of disability(s). Two items ("I enjoy outside recess" and "I like outside recess") were used to assess students' general enjoyment of outside recess. The same two items were adapted slightly to assess general enjoyment of inside recess. These two items were adapted for recess from an established enjoyment measure with validation evidence (Motl et al., 2001) and have been used previously to assess general enjoyment in recess settings (McNamara et al., 2018a, 2018b). Physical activity level during outside recess was assessed using a four-item physical activity scale with the wording modified slightly from previous uses such as physical education (e.g., Lodewyk & Mandigo, 2017) to apply to the recess setting of this study. The scale

items were “During outside recess, I am really physically active”; “I tend to stand still or sit down during outside recess”; “I tend to move my body (walk, run, and actively play) during outside recess”; and, “I spend most of outside recess time being so physically active that I am breathing hard and sweating.” The enjoyment and physical activity items used a 5-point scale (1 = Never; 5 = All the time) with higher scores reflecting more enjoyment or level of physical activity. Cronbach’s alpha reliability was .85 for enjoyment of inside recess, .79 for enjoyment of outside recess, and .86 for physical activity level during outside recess.

Positive and negative affect. A shortened (10-item) version of a frequently used scale with validation evidence (Watson, Clark, & Tellegen, 1988) was used to assess students’ positive (five items including “happy,” “safe,” “confident”) and negative (five items including “bored” and “lonely”) affect during recess. This shortened version has been used previously in a recess setting (McNamara et al., 2018b). A 5-point response scale (1 = Never; 5 = All the time) was used, the mean of each 5-item scale was computed, and the alpha reliability coefficients were .75 for positive affect and .74 for negative affect.

Victimization in outside recess. Three items from a previously used recess victimization scale (e.g., Volk & Lagzdins, 2009) were used to assess participants’ experiences with physical, verbal, and social victimization during outside recess. Scored on a 5-point rating scale (1 = Never; 5 = All the time), the items were: “I have been hit, kicked, or pushed by others on purpose during outside recess”; “During outside recess, I have been teased [made fun of] because of what I believe, look like, or say”; and, “During outside recess, it seems like others ignore and exclude me on purpose.” The scale mean was computed with higher scores reflecting more victimization and the alpha reliability coefficient was .77.

Peer belongingness in outside recess. For this study, six items were chosen from the eight-item recess belongingness scale developed and used by McNamara et al. (2018b) and modified to refer specifically to outdoor recess. Two items from the scale were omitted from this study because they pertained to adults, teachers, or staff rather than belongingness relative to peers that was more of the focus of this study. For example, three of the items were: “I can be myself during outdoor recess”; “I have friends during outdoor recess”; and, “I get along with others during outdoor recess.” Students responded to the items using a 5-point scale (1 = Never; 5 = All the time) and the scale mean was computed with higher scores indicating more belongingness with peers. The alpha reliability coefficient for the scale was .76.

Data Analysis

We computed descriptive statistics (i.e., means and standard deviations) for children with a disability and with no reported disability. Our screening of the data revealed no problematic distribution abnormalities (Tabachnick & Fidell, 2006). We applied a multivariate analysis of variance (MANOVA) to assess differences in each of the variables (positive and negative affect; outside and inside recess enjoyment; and victimization, peer belongingness, and physical activity in outside recess) between the disability and non-disability groups. The sample size of the two groups was imbalanced and outside recess enjoyment violated Levene’s test of equality of error variances. In line with recommendations by Tabachnick and Fidell (2006), we employed Pillai’s trace in the interpretation of the MANOVA analysis and the significance level pertaining to analyses involving outside recess enjoyment was altered to $p < .01$ from the standard $p < .05$. We ran Pearson bivariate correlations to analyze relationships among these variables relative to the disability and no disability groups. Finally, we performed regression analyses (by group)

with outside and inside enjoyment as outcomes, while using positive affect, negative affect, and outdoor recess peer belongingness, victimization, and physical activity as predictors.

Results

For the first objective of this study, students with a disability were compared to those reporting no disability on variables of self-reported positive and negative affect, and outdoor recess victimization, peer belongingness, and enjoyment (see Table 1 for descriptive statistics). Results of the MANOVA indicated a main effect difference between children with a disability and those without a disability: $F(7, 329) = 4.30, p < .001, \eta^2 = .084$. Compared to children without a disability, participants in the disability group reported significantly higher negative affect, $F(1, 335) = 3.18, p = .009, \eta^2 = .02$; enjoyment of inside recess, $F(1, 335) = 12.57, p = .001, \eta^2 = .034$; and victimization during outside recess, $F(1, 335) = 6.40, p = .002, \eta^2 = .028$. Students in the disability group also had lower levels of positive affect, $F(1, 335) = 5.83, p = .001, \eta^2 = .035$; and outside recess enjoyment, $F(1, 335) = 11.04, p = .001, \eta^2 = .032$; peer belongingness, $F(1, 335) = 5.57, p < .001, \eta^2 = .036$; and outside physical activity, $F(1, 335) = 7.75, p = .002, \eta^2 = .027$.

In response to the second objective of this study, analysis of the Pearson bivariate correlations (Table 1) within each group revealed that, except for between victimization and outside recess physical activity, the size and directions of the relationships were similar between the disability and no disability group. More specifically, there was no relationship in either group between outside and inside recess enjoyment; besides that, each correlation relative to outdoor recess in both groups was moderate, significant ($p < .01$), and in the expected direction. Further, correlations were very low ($r = -.07$ to $.21$) and insignificant ($p < .05$) between indoor recess enjoyment and each of the outcomes except outside physical activity in the non-disability group ($r = -.14$). In other words, the only significant correlation involving indoor recess

Table 1
Descriptive Statistics and Bivariate Correlations by Group

| Variable | No Disability M (SD) | Disability M (SD) | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|--------------------------------------|-------------------------|----------------------|--------|-------|--------|--------|--------|--------|-------|
| Outside Recess Enjoyment | 4.12 (.71) | 3.65 (1.05) | - | -.03 | .56** | -.40* | .45* | -.48** | .53** |
| Inside Recess Enjoyment | 3.34 (1.06) | 4.00 (.82) | .03 | - | .18 | .21 | .07 | .02 | -.07 |
| Positive Affect | 4.01 (.67) | 3.55 (.88) | .62** | .04 | - | -.56** | .62** | -.55** | .48** |
| Negative Affect | 1.95 (.66) | 2.30 (.78) | -.40** | .03 | -.55** | - | -.48** | .65** | -.20 |
| Outside Recess Peer Belongingness | 4.09 (.67) | 3.64 (.64) | .61** | .02 | .69** | -.53** | - | -.54** | .35 |
| Outside Recess Victimization | 1.79 (.81) | 2.27 (.94) | -.29** | -.05 | -.46** | .51** | -.59** | - | -.11 |
| Outside Recess Physical Activity | 3.73 (.90) | 3.20 (.96) | .54** | -.14* | .45** | -.36** | .35** | -.16** | - |

Note. No Disability Group (Lower Diagonal, $n = 306$); Disability Group (Upper Diagonal; $n = 31$).
* $p < .05$; ** $p < .01$.

Table 2

Significant Predictors of Enjoyment in Indoor and Outdoor Recess by Disability and No Disability

| Predictors | Outcome | | Inside Recess Enjoyment | | | | Outside Recess Enjoyment | | | |
|------------------------------|---------|-------|-------------------------|---------|---------------|-------|--------------------------|----------|---------------|-----|
| | | | Disability | | No Disability | | Disability | | No Disability | |
| Group | R^2 | F | R^2 | F | R^2 | F | R^2 | F | R^2 | F |
| ALL | .22 | 1.43 | .04 | 2.23 | .57 | 3.18* | .53 | 68.51*** | | |
| | β | t | β | t | B | t | β | t | | |
| Positive Affect | .54 | 1.99 | .14 | 1.59 | -.21 | -.72 | .28 | 4.78*** | | |
| Negative Affect | .49 | 2.00 | .06 | .74 | -.09 | -.37 | .004 | .08 | | |
| Peer Belongingness (Outside) | .07 | .27 | -.001 | .74 | -.13 | .55 | .36 | 5.97*** | | |
| Victimization (Outside) | -.01 | -.03 | -.05 | -.61 | -.41 | -1.89 | .10 | 1.88 | | |
| Physical Activity (Outside) | -.25 | -1.22 | -.19 | -2.92** | .76 | 2.68* | .31 | 6.78*** | | |

Note. $n = 306$ in No Disability Group; $n = 31$ in Disability Group; β values = standardized regression coefficients. Outside = Outside Recess.

* $p < .05$; ** $p < .01$; *** $p < .001$.

enjoyment was between it and lower outside physical activity in those without a disability. The low sample size of the disability group likely led to fewer statistically significant correlations in this study (Zhu, 2012).

Results of separate regression analyses for outside and inside enjoyment as outcomes and the other variables (positive affect, negative affect, and outdoor recess peer belongingness, victimization, and physical activity) as predictors are presented in Table 2. The predictor variables collectively predicted only outdoor recess enjoyment in both the no disability [$R^2 = .53$, $F(5, 300) = 68.51$; $p < .001$] and disability [$R^2 = .48$, $F(5, 25) = 4.55$; $p = .004$] groups. Individual predictors of outdoor recess enjoyment were physical activity in both the no disability ($p < .001$) and disability ($p = .025$) groups; along with positive affect ($p < .001$) and outdoor recess peer belongingness, ($p < .001$) in those with no disability. The sole predictor of indoor recess enjoyment was lower outdoor recess physical activity ($p = .004$) in the no disability group.

To recapitulate, these results indicate that, in both the disability and no disability group, the predictors (positive affect, negative affect and outdoor recess peer belongingness, victimization, and physical activity) collectively predicted outdoor not indoor recess enjoyment. Outdoor recess enjoyment seems significantly related to elevated physical activity regardless of whether students had or did not have a disability and might also be somewhat dependent on positive affect and peer belongingness in those without a disability.

Discussion

The goal of this study was to better understand differences in children's social experiences during recess between students with a disability and those without a disability. There were two specific objectives for the study; namely, to determine (1) differences between these two groups in extent of inside recess enjoyment and outside recess enjoyment, positive and negative affect, and in peer belongingness, victimization, physical activity during outside recess; and, (2) the

predictions of enjoyment of indoor and outdoor recess by these constructs. To summarize the main results relative to these two objectives, compared to students without a disability, those with one or more disabilities were higher in enjoyment of inside recess, negative affect, and victimization and lower in positive affect, outside recess enjoyment, outside peer belongingness, and outside physical activity. Second, outdoor not indoor recess enjoyment was collectively predicted by the other five outcomes in both groups. In those without a reported disability, positive affect and outdoor recess peer belongingness and physical activity predicted outside recess enjoyment whereas only lower outdoor recess physical activity predicted indoor recess enjoyment in those with a disability. More specifically pertaining to indoor recess enjoyment, in both the disability and non-disability groups, students' experiences of higher negative affect and victimization along with lower positive affect, belongingness, and physical activity during outside recess did not predict enjoyment of inside recess.

The primary value of this study to current educational theory is that it is one of only several studies investigating the recess experiences of children with and without disabilities. The results of the study will be discussed within cognitive mediation theory (Doyle, 1997) and its assertion that the role of contextual and personal differences (e.g., such as having a disability or not) on behavioral and emotional outcomes (e.g., recess physical activity and enjoyment) is often related to one's social experiences (e.g., peer belongingness and victimization) and feelings (e.g., positive and negative affect). To illustrate, recess is primarily a social setting that provides an important daily opportunity for children to connect with their peers (McNamara et al, 2018b; McNamara et al, 2015). Previous research has established that children with disabilities tend to be more vulnerable in social situations than their non-disabled peers, and the results of this recess study also underscore this (Kavale, & Forness, 1996; Lindsay & McPherson, 2012; Lavoie, 2005; McNamara et al, 2018a; Nowicki et al., 2014). Since it is well-established in the scholarly literature that social and relational dynamics start in childhood and cumulatively shape development across the lifespan (Stewart, Sun, Patterson, Lemerle, & Hardie, 2004; Umberson & Karaz-Montez, 2010), there is concern that children with disabilities are at a considerable disadvantage and vulnerable to the cumulative influence of negative experiences during recess (Kavale, & Forness, 1996; Lindsay & McPherson, 2012; Lavoie, 2005; McNamara et al, 2018a; Nowicki et al., 2014).

The results of this study indicate that outdoor recess—the most common form of recess—tends to be less of a positive experience (higher negative affect and victimization along with lower positive affect, belongingness, and physical activity) for children with a disability than those without one. For this reason, children with disabilities may be more vulnerable during recess—especially during outside recess—which might partially explain their tendency to enjoy inside recess more than outdoor recess. Outdoor recess experiences might exacerbate the challenges these individuals already tend to experience socially and emotionally (and vice versa) (Tehrani-Doost, Noorazar, Shahrivar, & Banaraki., 2017): this may be compounded when peers avoid or lack awareness in how to engage with a peer with a disability, since children without disabilities tend to be more likely to engage when they believe the interaction would not be difficult (Nowicki et al., 2014). To illustrate, when playing during recess, children may not understand or become frustrated when a child with a disability fails to share, cooperate, and behaves inappropriately or unexpectedly (Wilkes-Gillan et al., 2016). Therefore, children may not be mindful of the needs of individuals with disabilities and in future interactions may exclude a child with a disability if they believe the child will have difficulty engaging (Diamond, Hong, & Tu, 2008). As a result, children with disabilities face higher rates of peer rejection and

have far fewer peer friendships than their typically-developing peers (Bacchini, Affuso, & Trotta, 2008; Ohan & Johnston, 2007; Tehrani-Doost et al., 2017; Wilkes-Gillan et al., 2016). As well, some disabilities are reflected differently in boys and girls. For example, girls with ADHD are found to be more aggressive in their use of language than their typical peer groups. Moreover, girls with ADHD lack prosocial behaviour skills when compared to their typical peer groups, directly leading to issues in maintaining social friendships and having fewer friendships (Ohan & Johnston, 2007). Conversely, boys diagnosed with ADHD are more often victims of exclusion and peer harassment due to being perceived as “different” (Shea & Wiener, 2003).

This study reported significantly higher levels of victimization in individuals with than without a disability and that victimization predicted lower enjoyment of outside recess regardless of whether a student had a disability or not. The latter finding is well-established in the literature (e.g., Hansen, Steenberg, Palic, & Elklit, 2012). Meanwhile, the first of these results corroborates previous research (e.g., Bacchini et al., 2008; Heiman et al., 2015) suggesting that, in addition to struggling socially during recess, those with disabilities may be more likely to experience bullying. *Bullying* is defined as “repetitive and abusive behaviour by a student, or group of students, towards a weaker classmate” (Bacchini et al., 2008, p. 448). The minimally supervised nature of recess tends to allow for bullying and victimization to go unnoticed (McNamara, 2013; Vaillancourt et al., 2010). Both bullies, and victims of bullying, lack problem solving skills and have poor emotional regulation, which are also common implications of disabilities (Heiman et al., 2015). These negative experiences can put individuals with disabilities at more risk for serious consequences both at recess and in their overall development. To illustrate, children who lack supportive friendships are at a higher risk for social, emotional, or behavioral difficulties that lead to mental health issues such as depression or anxiety (Umberson & Karaz-Montez, 2010). For children with disabilities, such mental health issues can compound their vulnerability further, compromising their overall engagement with school and subsequent quality of life.

There are several implications from this research study on the ways that schools might approach recess. For example, it is well understood that students who experience feelings of social connectedness and belonging at school report higher enjoyment, enthusiasm, happiness, interest, and confidence (Osterman, 2010). Subsequently these factors influence academic motivation, school engagement, and commitment to school (Wang & Holcombe, 2010). Conversely, feelings of isolation, exclusion, and feelings of social disconnect often contribute to disengagement from school. We suggest that there is a need for larger systemic changes to be in place so that vulnerable children are better-supported during recess. Specifically, in Ontario for example, there is a need for accessibility legislation (Ontarians with Disabilities Act, 2001; Accessibility for Ontarians with Disabilities Act, 2005) to be much more explicit and direct in their reference to school playgrounds (see Yantzi et al., 2010 for a review of accessible school playgrounds). This will provide more specific direction for the development of provincial and school board policies that will, in turn, shape the direction of improvement efforts at the school level. Specifically, schools will need to include recess in their overall improvement plans and focus on ways to increase belonging and social connectedness during recess (McNamara et al., 2018b) for all children; but most pointedly, for students with disabilities.

Though our study extends understanding of the ways in which children with disabilities experience recess, the following limitations should be considered. First, the students self-identified as having a disability. We allowed for this option to maintain the anonymity of the survey. At the beginning of the survey, we provided all students with the consent form from their

parents, which indicated whether they had a disability/impairment, and if so, a description of it. The children with a disability may or may not have referred to it, and if they did, we still cannot confirm a diagnostic status as we relied on parents' information. Second, we relied on students' self-reports with respect to enjoyment, affect, victimization, physical activity, and belongingness. There is the possibility with self-report methods that children will over- or underestimate their reports. Third, although attempts were made (reducing the probability level to .01 and using Pillai's Trace) to control for the unequal sizes of the two groups in this study, inferences made from this study warrant some caution due to this limitation. Fourth, the assessment of general recess enjoyment had only two items. Finally, low sample sizes make it more challenging (suppression) for correlations to be statistically significant (e.g., $p < .01$) whereas high sample sizes can overinflate that likelihood (Zhu, 2012). Although not statistically significant, the moderate-to-high standardized regression coefficients ($\beta > +/- .30$) in several of the predictions in this study may signal the former; that is, a suppression effect due to the low sample size of the disability group (Zhu, 2012). Finally, only enjoyment was assessed relative to indoor recess in this study. Future research should explore each of the constructs in this study and others in both indoor and outdoor recess to better compare students' socio-emotional and physical activity levels in these diverse recess contexts.

Seeking more individuals who experience a disability could also provide a better understanding and picture to the purpose of this work. It would also be useful for subsequent studies to apply structural modeling statistical techniques to assess the links between the constructs in this study as a function of indoor and outdoor recess enjoyment since the disability group in this study may have been more likely to enjoy inside than outside recess because of their compromised affect, victimization, peer belongingness, and extent of physical activity during outside recess. More specific information is also needed about how the recess environment is experienced by students with disabilities (i.e., peer interactions, supervision, activities, and access to equipment) so that proper accommodations can be recommended and implemented to better support the child during this unstructured time. Relevant knowledge would also benefit from the use of detailed qualitative investigations (e.g., embedded case studies and phenomenological studies) that provide rich descriptive information about the recess experiences of children with disabilities.

To conclude, the goal of this study was to examine more about how children with disabilities may be experiencing recess. There is little research in this area and our study was primarily exploratory and designed to initiate further research and conversation. The results indicate that, compared to their peers without a reported disability, children with disabilities tend to enjoy inside recess more and are more vulnerable especially during outside recess as signaled in their higher negative affect and victimization and lower positive affect and outside recess enjoyment, peer belongingness, and physical activity. Children with disabilities may benefit from a recess climate that provides more psychosocial support, such as the provision of scaffolded activities designed to encourage friendships based on mutual interests (see McNamara et al., 2018b; McNamara et al., 2014). Since the aim of the study was to understand the general experience of recess for students with disabilities, it would also be beneficial for future research to more closely investigate the specific features of the recess environment for such students.

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