Pre-service Teacher Beliefs on the Antecedents to Bullying: A Concept Mapping Study

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Abstract

In this study, researchers gathered Canadian pre-service teachers' beliefs on the antecedents to bullying. Concept mapping (Kane & Trochim, 2007) was used to analyze the data. This study's findings identified pre-service teachers to have accurate beliefs, inaccurate beliefs, and a lack of knowledge about the antecedents to bullying. Concept maps and accompanying factor-rating tables indicate that participants believe antecedents to bullying include family factors, abuse, instability and socio-economic factors, school and academic factors, interpersonal factors, and personal factors. Results may inform pre-service teachers' knowledge, and indicate what information pre-service teachers need to be taught.

Keywords: bullying, concept mapping, pre-service teachers, beliefs, teacher education, aggressive behaviour

Résumé

Dans cette étude, les chercheurs se sont réunis croyances canadiennes d'enseignants pré-services sur les antécédents de l'intimidation. La cartographie conceptuelle (Kane & Trochim, 2007) a été utilisé pour analyser les données. Les résultats de cette étude a identifié des futurs enseignants d'avoir des croyances précises, croyances erronées, et un manque de connaissances sur les antécédents de l'intimidation. Les cartes conceptuelles et d'accompagnement tables facteur de notation indiquent que les participants croient antécédents à l'intimidation pour inclure les facteurs familiaux, l'abus, l'instabilité et les facteurs socio-économiques, l'école et les facteurs scolaires, les facteurs interpersonnels, et les facteurs personnels.

Mots-clés : intimidation, mappage des concepts, futurs enseignants, croyances, formation des enseignants, comportement agressif

Introduction

Bullying is an issue that is pervasive in schools internationally (Olweus, 1994). Studies from the United States, the United Kingdom, Scandinavia, and Australia show significant prevalence of bullying in the schools, with close to 30% of youth (Grades 6–10) reporting involvement as bullies, victims, or both (Nansel, Overpeck, Pilla, Ruan, Simons-Morton, & Scheidt, 2001). In Canada, rates of bullying and victimization are higher than the international average, with Canada being ranked in the upper quartile of prevalence for both bullying perpetration and victimization (Craig, Pepler, & Blais, 2007). Up to 45% of Canadian children in Grades 1–12 report being perpetrators of bullying in the past two months (PREVnet, 2010), and approximately 6% of Canadian children between the ages of 12 and 19 years report bullying perpetration on a weekly basis (Public Safety Canada, 2010). Based on these figures, it can be summarized that bullying is a problem in Canadian schools.

Bullying can be defined as a deliberate systematic abuse of power characterized by intense aggressive behaviour repeated against a victim who cannot readily defend him or herself (Olweus, 2003; Rigby, 2002; Smith, 2004). The aggressive behaviour can be physical (e.g., hitting, pinching), verbal (e.g., teasing, name-calling), or psychological (e.g., social exclusion, spreading rumors), and can be classified as direct or indirect (Nansel et al., 2001). Studies of the dynamics of bullying have revealed several interpretations and categorizations of the roles assumed by those involved, but the most widely accepted are the traditional roles of bully, victim, and bully-victim (Smith, 2004). Teachers are well placed to identify those who bully, or who are at risk of becoming bullies, but research suggests that their knowledge on the topic is limited or inaccurate (Bauman & Del Rio, 2005; Benitez, Garcia-Berben, & Fernandez-Cabezas, 2009; Nicolaides, Toda, & Smith, 2002). Little is known about Canadian pre-service teachers' knowledge on this topic. K. Craig, Bell, and Leschied (2011) investigated Canadian pre-service teachers' knowledge and attitudes on bullying, however they did not include knowledge on the antecedents (i.e., preceding factors) that lead to bullying. This is problematic given the comparatively high incidence of bullying and victimization in Canadian schools. Also, pre-service teachers' empathy is a predictor of their attitudes towards bullying and may predict the likelihood that they will intervene in bullying situations (W. M. Craig, Henderson, & Murphy, 2000). Therefore, it is important for pre-service teachers to be informed on the

antecedents to bullying and how these may impact students that bully others. Thus, the goal of this study was to gain insight into Canadian pre-service teachers' knowledge and beliefs about the antecedents to bullying within a Canadian context. We asked the following questions: (a) What do Canadian pre-service teachers in a major Ontario university believe to be the antecedents to bullying? and (b) How accurate are their beliefs in comparison to the international literature base? We employed a mixed-method technique known as concept mapping (Kane & Trochim, 2007) to answer these questions because it combines the richness of qualitative interviews for data collection with the rigours of statistical data analysis. It also provides a way to uncover explicit and implicit knowledge on a topic (Nowicki, Brown, & Stepien, 2014), which is a unique feature not found in more traditional approaches. Furthermore, no studies to our knowledge have used this approach to investigate pre-service teachers' beliefs about bullying.

Pre-service Teachers' Perceptions, Attitudes, and Beliefs about Bullying

Studies conducted in the United States, United Kingdom, and Granada have focused on the beliefs, perceptions, and attitudes of pre-service teachers about bullying and peer victimization (Bauman & Del Rio, 2005; Benitez et al., 2009; Nicolaides, Toda, & Smith, 2002). Specifically, these studies have explored pre-service teachers' knowledge about bullying, identification of different types of bullying, and empathy toward victims and bullies. Several of these have included suggestions for pre-service teacher education programming (Bauman & Del Rio, 2005; Benitez et al., 2009; O'Moore, 2000). Research on pre-service teachers' knowledge of bullying indicates that although pre-service teachers have some accurate beliefs about bullying, there are omissions in their definitions of bullying and in their beliefs about those involved (Nicolaides et al., 2002). For example, pre-service teachers generally believe that bullies have low self-esteem and lack social skills. The research on self-esteem, however, has yielded mixed results (Olweus, 1993; O'Moore, 2000), and there is evidence that a good proportion of bullies score well on social skills assessments (Sampson, 2002; Sutton, Smith, & Swettenham, 1999). In addition, Bauman and Del Rio (2005) found that few pre-service teachers identified repetition and an imbalance of power in their definitions of bullying. Also, physical aggression was

identified as bullying more often than verbal or relational aggression (W. M. Craig et al., 2000). Externalizing behaviours such as bullying or stealing were considered to be more serious than internalizing ones such as depression, although experienced teachers attributed a greater degree of seriousness to internalizing behaviours compared to pre-service teachers (Kokkinos, Panayioutou, & Davazoglou, 2004). Furthermore, empathy has been shown to be associated with pre-service teachers' definitions of bullying, their perceptions of the seriousness of various types of bullying, and their likelihood of implementing interventions (W. M. Craig et al., 2000).

Given that there are gaps in pre-service teachers' knowledge about bullying, education about bullies and bullying is important, and it can be effective (Benitez et al., 2009). Researchers have recommended improvements for pre-service teacher education programming including accurate dissemination of research results on bullying (Bauman & Del Rio, 2005; Benitez et al., 2009; O'Moore, 2000), ensuring that pre-service teachers can identify the signs, effects, and causes of bullying, and the teaching of explicit knowledge about bullying, prevention, and intervention strategies (O'Moore, 2000).

Factors Associated with Bullying

In order to determine whether or not Canadian pre-service teachers are well informed about the antecedents of bullying, it is necessary to review what is known about bullying as portrayed in the literature base. This will provide a point of comparison for the knowledge and beliefs of Canadian pre-service teachers.

Bullying appears to be most prevalent during the transition years between elementary and secondary school (Pepler, Craig, Connoly, Yuile, McMaster, & Jiang, 2006), occurring most frequently between Grades 6 and 8 (Nansel et al., 2001). Otherwise, demographic factors appear to have a low to non-existent association with bullying behaviours (W. M. Craig, Peters, & Konarski, 1998; Crick & Grotpeter, 1996; Graham & Juvonen, 2002; Nansel et al., 2001). For example, socio-economic status and poverty may be only indirectly associated with bullying due to their relation with increased personal and familial stress (W. M. Craig et al., 1998). In addition, gender and ethnicity have not been found to be notable factors in bullying behaviour (Crick & Grotpeter, 1996; Graham & Juvonen, 2002; Nansel et al., 2001).

However, family factors have been found to be significant predictors of bullying behaviours (Carney & Merrell, 2001; Patterson, Capaldi, & Bank, 1991; Pelligrini, 1998; Olweus, 1979; M. Roberts, 1988; W. B. Roberts & Morotti, 2000), and include hostile discipline techniques (Olweus, 1979), power-assertive discipline (Pelligrini, 1998), inconsistent discipline techniques, and coercive means of control (Carney & Merrell, 2001). Permissive and authoritarian parenting styles may also be associated with bullying behaviour, although a child's temperament and other contextual variables may have a moderating effect (Curtner-Smith, 2000; Olweus, 1978, 1980, 1993; Pellegrini, 1998). Other antecedents include parental modeling, such as poor treatment of other people, aggressive conflict resolution (Patterson et al., 1991; W. B. Roberts & Morotti, 2000), neglect (M. Roberts, 1988), and anxious-avoidant insecure attachment (Finnegan, Hodges, & Perry, 1996; Troy & Sroufe, 1987). Bullies are often the perpetrators of aggression towards siblings (Duncan, 1999). Although family size appears not to be related to bullying (Berdondini & Smith, 1996; Rigby, 1993), both paternal absence (Henggeler, Schoenwald, Borduin, Rowland, & Cunningham, 1998), parental incarceration (Bond, Carlin, Thomas, Rubin, & Patton, 2001; Flouri & Buchanon, 2002), and being a young parent (W. M. Craig et al., 1998) appear to be associative factors that are positively correlated with bullying behaviours.

Abuse in the home is another antecedent to bullying. For example, mothers who use more physical punishment on their children are more likely to have children that exhibit aggressive behaviour (Olweus, 1980). Male bully-victims often come from homes where physical punishment and abuse are prevalent, and mothers of victims that provoke others through aggression of their own are often harsh and punitive in their disciplining manner (Schwartz, Dodge, Pettit, & Bates, 1997). There have been a number of studies showing associations of specific types of abuse (e.g., sexual abuse, verbal abuse, substance abuse) with aggression and aggressive behaviour (Mazur & Malkowska, 2003; Molcho, Harel, & Dina, 2004; Spillane-Grieco, 2000; Swanston, Parkinson, O'Toole, Plunkett, Shrimpton, & Oates, 2003).

However, research regarding the association of school factors with bullying is relatively sparse. Nevertheless, Lagerspetz, Bjorkqvist, Berts, and King (1982) found that bullying was less prevalent in rural compared to urban schools. Low achievement and bullying have been linked in several studies, but it is unclear as to whether low achievement causes bullying, whether bullying causes low achievement, or whether both of these

effects are happening simultaneously (Nansel et al., 2001; Olweus, 1979). Class size and school competitiveness do not appear to be associated with bullying (Lagerspetz et al., 1982; Olweus, 1978). On the other hand, the quality of teacher–student relationships appears to be associated with the socio-emotional development of students with more positive relationships being associated with lower aggressive behaviours among students (Birch & Ladd, 1997; Hamre & Pianta, 2001). Furthermore, teachers' attitudes toward aggression and their ability to identify bullies and bullying situations are associated with quantity of bullying occurrences (Espelage & Swearer, 2003).

The social skills and social status of bullies and how these factors are related to bullying is somewhat controversial. Early research found that bullies lacked social skills (Dodge & Frame, 1982; Dodge, Pettit, McClaskey, & Brown, 1986), but later studies found that bullies sometimes exhibit social skills that are on par or even better than their non-bullying peers (Sutton et al., 1999). Intrapersonal factors, such as oppositional defiant disorder, attention deficit hyperactivity disorder, and hostile attribution bias have been found to be antecedents to bullying (Dodge, 1991; McNamara & McNamara, 1997; Pope & Bierman, 1999; Shields & Cicchetti, 2001). Although there is limited research on the association between learning disorders (LD) and bullying, LDs have been found to be associated with aggression (Norwich & Kelly, 2004), except in the case of reading disabilities, which appears to be more associated with victimization (Ingesson, 2007).

In summary, bullying behaviours are associated with a number of antecedents that include family characteristics, abuse in the home, school climate and student–teacher relationships, interpersonal dynamics, and intrapersonal factors. As noted above, several studies on bullying have highlighted the importance of understanding pre-service teachers' knowledge and beliefs as a first step in programming curricula regarding bullying prevention (Bauman & Del Rio, 2005; Benitez et al., 2009; W. M. Craig et al., 2000; Kokkinos et al., 2004; Nicolaides et al., 2002; O'Moore, 2000). Otherwise, pre-service teachers may rely exclusively on their own implicit or explicit beliefs, some of which may be inaccurate. Although some of the studies in this domain have investigated pre-service teachers' knowledge and beliefs about bullying (Bauman & Del Rio, 2005; Benitez et al., 2009; Nicolaides et al., 2002), there has yet to be a study that maps the broad range of pre-service teachers' beliefs about the antecedents to bullying, identifies major themes that emerge, and compares these beliefs with existing research to identify accuracies and

misconceptions. Furthermore, it is critical that this research be carried out in a Canadian context given the comparatively high incidence of bullying in Canadian schools.

Concept Mapping

We chose to approach this issue from a mixed methods perspective, known as Trochim's (1989) concept mapping. According to Nowicki et al. (2014), concept mapping addresses both implicit and explicit knowledge, provides a viable method of summarizing interview data, and provides a visual display of conceptual schemas on a given topic. Although it is a powerful technique for analysing interview data, concept mapping has not been used much in psycho-educational research (Nowicki et al., 2014) other than for a few studies on adults' experiences of effective learning (Warburton, 2003), and teachers' understanding of adaptive learning environments (Stoyanov & Kirchner, 2004).

Trochim's (1989) concept mapping is characterized by its use of qualitative data gathering and statistical data analysis. It consists of six sequential multi-stage steps. First, research questions and participants are identified. Second, participants are interviewed, interview data are transcribed, redundant statements are removed, and unique statements are extracted and printed on cards. Third, the unique statements are returned to participants who are asked to sort them into conceptually meaningful thematic groups, provide a label for each group, and rate the importance of each statement. Fourth, the researcher performs multi-dimensional scaling and cluster analysis on the sorted data, and decides on the optimal number of concepts using meaningfulness of the concepts or clusters and statistical criteria. Fifth, the researcher labels the clusters using the participants' comments as appropriate. Sixth, a map is generated that shows the relationships of statements found within and between clusters (Nowicki et al., 2014).

Thus, the goals of our study were (a) to produce a visual representation of the beliefs of pre-service teachers regarding the antecedents to bullying, (b) to identify emergent themes that arise from these beliefs, and (c) to identify accurate and inaccurate pre-service teachers' beliefs by comparing the data with the current knowledge found in the peer-reviewed literature base.

Method

Participants

Forty students enrolled in a pre-service teacher education program at a large Canadian university took part in this study. Forty participants took part in the interview phase of the study, and 15 students took part in the sort phase. According to Kane and Trochim (2007), the same participants do not need to take part in both the interview and sort phases but they must be drawn from the same participant pool. Eighteen of the participants were men and 22 were women, with an average age of 27.43 years (SD = 6.46). The majority of the participants were of Euro-Canadian descent, one was Asian Canadian, and three were of mixed ethnicity.

Procedure

Following ethics approval for the study by our university ethics review board, we began recruitment by posting notices on bulletin boards around the Faculty of Education building. We visited pre-service students in one of their mandatory classes, informed them of the purpose of the study, and invited them to participate. We provided a letter of information and consent form to those who were interested in participating, and we gave participants the opportunity to partake in the study immediately or to set up a mutually convenient time to do so.

Interviews took place in a private room at the Faculty of Education where participants were enrolled. We asked participants to brainstorm in response to two questions. The warm-up question was: "What characteristics do you associate with a bully?" This was followed by the main question, "What factors do you think contribute to someone becoming a bully?" We recorded responses on a portable digital mp3 recorder and then transcribed them.

List synthesis. Following the paradigm suggested by Kane and Trochim (2007), we identified individual statements and compiled an alphabetized list of all statements from the interviews. A unique statement was defined as any single idea mentioned during an interview. We extracted statements for inclusion in the sort tasks through a process that involved three graduate students, who were asked to mark each statement as (a)

answering the question, (b) not answering the question, or (c) being redundant. These lists were then compared by the researchers for inter-rater discrepancies, with statements marked as "answering the question" by two of three inter-raters retained. We selected 77 unique statements, which were then individually printed on strips of paper. Statements are listed in Table 1.

Table 1: Cluster Items and Bridging Values for Antecedents to Bullying Concept

Cluster and statement		Bridging	Mean
Cluster #1 – Family Factors		0.11	3.40
5.	abuse at home	0.12	4.87
66.	observe violent behaviour at home	0.15	4.47
3.	absent parents	0.00	4.27
60.	lack of parental guidance	0.06	4.13
11.	an older sibling abusing a younger sibling	0.12	4.13
2.	a void of love	0.25	4.13
31.	domestic troubles	0.00	4.07
9.	alcoholic parents	0.02	4.00
34.	don't have strong support	0.08	4.00
62.	neglect	0.22	4.00
33.	don't have good family relationships	0.01	3.93
39.	family stress	0.01	3.93
57.	lack of limitations	0.54	3.80
51.	inconsistency at home	0.01	3.53
56.	lack of structure	0.31	3.53
53.	instability	0.51	3.40
18.	behavioural expectations at home	0.03	3.33
30.	divorce	0.02	2.93
61.	moving all the time	0.17	2.93
1.	a bad day at home	0.05	2.67
69.	overparenting	0.03	2.53
70.	parent has lost a job	0.02	2.33
26.	death in the family	0.13	2.27
72.	parents were young when had them	0.08	1.67
14.	are the older brother	0.03	1.60
78.	raised by grandmother	0.08	1.53
Cluster #2 – Abuse, Instability, and SES Factors		0.67	3.28
4.	abuse	0.42	4.87
10.	alcohol abuse	0.61	4.27
36.	drug abuse	0.97	4.13
88.	verbal abuse	0.52	4.00
80.	sexual abuse	0.65	3.87
85.	media	1.00	3.47
44.	financial instability	0.35	2.93

49.	hunger	0.76	2.20
77.	race	0.86	2.20
47.	genetics	0.82	2.13
Cluster #3 – School Factors and Exceptionalities		0.70	2.67
67.	observe peer bullying behaviour	0.68	3.87
58.	learning difficulties	0.61	3.07
65.	not identified as learning disabled	0.63	2.80
63.	not academically inclined	0.52	2.53
7.	Attention Deficit Hyperactivity Disorder	0.79	2.47
6.	academic inclination	0.61	2.40
50.	illness	0.90	2.20
29.	disability	0.79	2.13
19.	blood sugar levels	0.92	2.00
Cluster #4 – Interpersonal Factors		0.42	3.66
75.	peer pressure	0.35	4.67
73.	peer encouragement of bullying behaviours	0.44	4.67
74.	peer group membership	0.37	4.47
84.	testing power	0.49	4.00
24.	conforming to group	0.34	3.80
83.	testing popularity	0.43	3.73
17.	been bullied before	0.52	3.73
32.	don't fit in	0.40	3.67
42.	feel threatened at school	0.41	3.67
37.	exclusion	0.37	3.47
48.	have difficulty making friends	0.39	3.20
82.	stress from teachers	0.48	3.20
22.	collective feeling that person is different	0.41	3.00
68.	older in a younger school	0.44	2.93
64.	not getting teacher attention	0.48	2.73
Cluster #5 – Personal and Personality Factors		0.53	3.31
43.	feel good when others feel bad	0.43	4.47
35.	don't have an outlet for emotions	0.76	4.13
55.	jealousy	0.37	4.07
59.	low self-esteem	0.41	3.93
41.	feel like have no control	0.50	3.87
81.	stress	0.62	3.80
76.	powerlessness	0.62	3.67
46.	gender role perceptions	0.72	3.67
40.	fear	0.51	3.53
87.	value conformity	0.41	3.47
45.	frustration	0.53	3.40
54.	attitudes around sexuality	0.56	3.40
16.	attention seeking	0.59	3.40
27.	defining other as other, and self as norm	0.42	3.33

23.	confidence	0.45	2.67
52.	independence	0.49	2.47
79.	reclusiveness	0.53	2.40
21.	charisma	0.46	1.80
15.	athleticism	0.49	1.53

Sorting and rating. In a private room at the faculty, participants were seated at a table with the extracted statement strips laid out before them in random order. They were informed that each strip contained a statement extracted from the interviews, and they were asked to sort the statements into categories that "make sense" to them. They were informed that each statement could only be sorted into one category, and to provide a label for each. Next, participants completed the rating task. Each participant was given a booklet containing a list of all of the unique statements extracted from the interviews. They were then asked to rate the statements on a Likert type scale from 1 to 5 for relevancy, with a score of 1 indicating very low relevancy as an antecedent to bullying, and 5 indicating very high relevancy.

Results

Participants provided an average of 1.925 unique statements each, which were used in the multi-dimensional scaling, cluster analysis, and interpretation steps of the concept mapping process.

Multidimensional Scaling

Spatial relationships between the statements were determined through multidimensional scaling. This was accomplished by constructing a data matrix for each participant (Trochim, 1989) using The Concept System® software (version 4.0, Concept Systems Incorporated). Numbered rows and columns were equal to the number of statements, and a value of one was placed where statements intersected. Individual matrices were summed to form a group proximity matrix. Multi-dimensional scaling was then used on this matrix to create a point map, which displayed relationships between statements as points on a two-dimensional map (see Figure 1). Distances between statements reflect the frequency with which they were sorted together such that statements that are in close proximity on

the map were more frequently sorted together than statements that are further apart. For example, in the centre top of Figure 1, points representing statements 27 ("defining others as other, and self as norm") and 87 ("value conformity") are close together. This means that they were frequently grouped with one another. In comparison, statement 10 ("alcohol abuse") is further away on the map from statements 27 and 87, indicating that it was not typically sorted with the other two statements. A stress value was calculated to determine the reliability or goodness of fit of the map with the group proximity matrix. Stress values range from 0 to 1, with lower values representing a better goodness of fit than higher values. We obtained a value of 0.224. Sturrock and Rocha (2000) reported that multi-dimensional maps with a stress value of .39 or lower have less than a 1% probability of having no structure or a random configuration. Thus, our data can be considered to be very reliable.
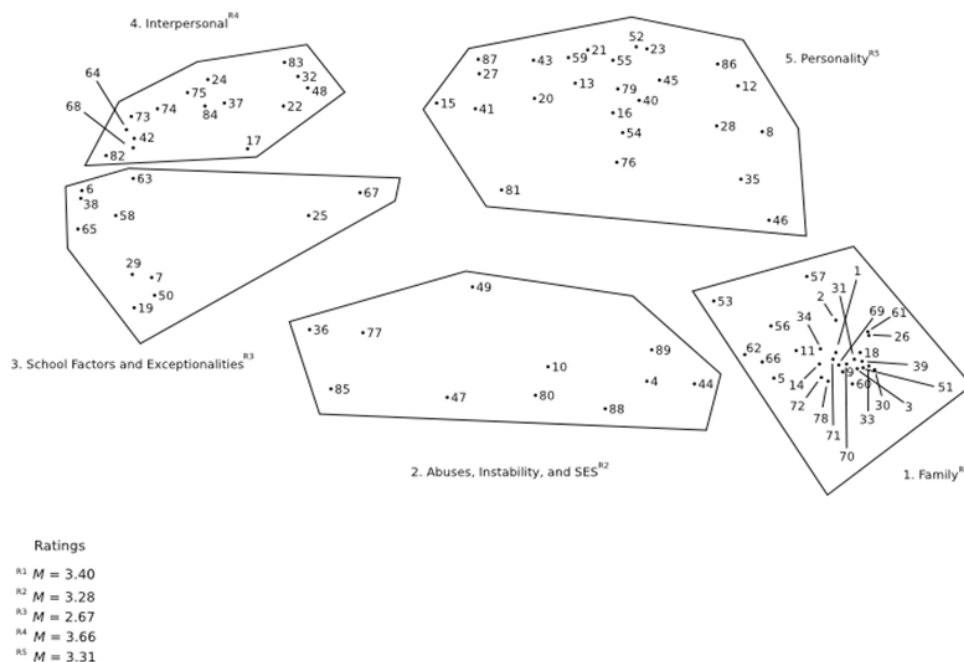

Figure 1: Point Map of Pre-Service Teacher Beliefs on the Antecedents to Bullying.

Cluster Analysis

Hierarchical cluster analysis was performed on the point map to obtain thematically meaningful groupings of the data. This analysis begins by treating each statement as its

own cluster, but through multiple iterations it is merged with other statements until all statements are merged into one big cluster. It is up to the researchers to decide which iteration provides the most conceptually meaningful and statistically reliable clustering of the data. This requires that the researchers be fully knowledgeable of the methodology and the content of the area of interest. It is important to note that the underlying point map does not change throughout the iterative process; the statements do not move on the map, but the boundaries which define the clusters differ from iteration to iteration (Kane & Trochim, 2007). In any solution, some statements may not be ideally placed on the map, but the goal is to maximize the number of conceptually linked statements within a cluster while retaining sound statistical results and conceptual meaning. Bridging indices are used to aid in the selection of the final map, and reflect the ease or difficulty with sorting each statement. Values can range from 0 to 1 with lower values indicating that the statement was easier to sort into a given cluster than statements with higher values. The goal is to obtain clusters with low average bridging indices. We decided, through discussion, on a five-cluster solution because it provided the best balance of conceptual fit and cluster reliability (see Figure 2).

Figure 2: Point-Cluster Map of Pre-Service Teacher Beliefs on the Antecedents to Bullying.

The number of statements per cluster ranged from 10 to 26 with average bridging indices between 0.11 and 0.70. Thematic clusters focused on (a) family factors (cluster one, average bridging index = 0.11, 26 statements), (b) abuse, instability, and socio-economic status (cluster two, average bridging index = 0.67, 10 statements), (c) school factors and exceptionalities (cluster three, average bridging index = 0.70, 11 statements), (d) interpersonal factors (cluster four, average bridging index = 0.42, 19 statements), and (e) personality factors (cluster five, average bridging index = 0.53, 19 statements). Each cluster is discussed, below.

Cluster one: Family factors. In this cluster, statements (n=26) were centred on issues and circumstances related to family and home life. Thirteen statements were highly relevant with an average rating of 4.13 (SD = 0.28), 8 statements were moderately relevant with an average rating of 3.11 (SD = 0.39), and five statements were less relevant with an average rating of 1.88 (SD = 0.39).

Cluster two: Abuse, instability, and socio-economic status. Statements (n = 10) related to abuse, instability, and socio-economic status were included in this cluster. Five statements were highly relevant with an average rating of 4.23 (SD = 0.39), two statements were moderately relevant with an average rating of 3.2 (SD = 0.38), and three statements were less relevant with an average rating of 2.18 (SD = 0.04). This cluster's rating average was low in relation to the other antecedent to bullying categories

Cluster three: School factors and exceptionalities. This cluster encapsulates factors (n = 11) related to school life and exceptionalities. Overall, pre-service teachers rated these factors as moderately relevant with an average rating of 2.61 (SD = 0.58). However, one statement was highly relevant with a rating of 3.87, seven statements were moderately relevant with an average rating of 2.73 (SD = 0.28), and three statements were less relevant with an average of 2.11 (SD = 0.10).

Cluster four: Interpersonal factors. Statements (n = 15) related to the ways in which people interact with one another are included in this group. Nine statements were highly relevant with an average of 4.05 (SD = 0.43), and six statements were moderately relevant with an average of 3.09 (SD = 0.26). The mean rating value of statements in this cluster was the highest compared to the other four categories.

Cluster five: Personality factors. This cluster includes factors (n=19) related to social-emotional and individual characteristics. Eight statements were highly relevant

with an average of 3.95 (SD = 0.27), nine statements were moderately relevant with an average of 3.12 (SD=0.46), and two statements were less relevant with an average of 1.67 (SD = 0.19).

Discussion

Although pre-service teachers provided an average of 1.925 statements per participant, they were able to reliably sort 77 statements into five meaningful categories: (a) family factors, (b) abuse, instability and socio-economic status factors, (c) school factors and exceptionalities, (d) interpersonal factors, and (e) personality factors, with interpersonal factors rated as the most relevant antecedents to bullying behaviour. These results suggest that pre-service teachers have a strong implicit understanding of bullying but may need to become more familiar with the topic before they can explicitly articulate and act on their knowledge.

Cluster One: Family Factors

Pre-service teachers identified abuse at home, observation of abuse at home, poor familial relationships, and parental behaviours as being highly likely to cause someone to become a bully. These ideas reflect findings in the literature base on the antecedents to bullying (Carney & Merrell, 2001; Curtner-Smith, 2000; Olweus, 1979; Pellegrini, 1988; M. Roberts, 1988; Schwartz et al., 1997; Tolan, Cromwell, & Braswell, 1986).

Participants rated instability ("inconsistency at home," "moving all the time," "lack of structure"), events ("a bad day at home"), and parental boundaries ("over-parenting") as being moderately likely to serve as antecedents to bullying. They rated family structure ("raised by grandmother"), birth order ("being the older brother"), and economic stress ("parent has lost a job," "parents were young when had them") as being less likely to be antecedents to bullying. Participants did not mention attachment factors as antecedents; however, research shows that attachment style is associated with bullying (Finnegan et al., 1996; Troy & Sroufe, 1987).

Cluster Two: Abuse, Instability, and Socio-economic Status

Participants identified direct forms of abuse ("sexual abuse," "verbal abuse," "physical abuse") and substance abuse ("alcohol abuse," "drug abuse") as being highly relevant as antecedents to bullying, whereas financial instability and the media were considered to be moderately relevant. The belief about financial instability aligns with research that has shown that socio-economic status and poverty are indirectly associated with bullying due to their relation with increased personal and familial stress (W. M. Craig et al., 1998; Patterson & Dishion, 1988). Further, participants identified wealth, hunger, race, and genetics as being less likely to antecede bullying which aligns with current literature (Crick & Grotpeter, 1996; Graham & Juvonen, 2002; Nansel et al., 2001; Olweus, 1987).

Cluster Three: School and Exceptionalities

Participants rated "observation of peer bullying at school" as being highly relevant to engaging in bullying. This belief is supported by Bandura's (1977) findings that children's observation of aggression in their environment can lead to an increase in aggressive behaviour. Pre-service teachers also rated factors related to poor achievement, learning disorders, and behavioural exceptionalities as being moderately relevant to bullying, a finding that closely aligns with the peer-reviewed literature (Dodge, 1991; McNamara & McNamara, 1997; Norwich & Kelly, 2004). However, the belief about poor achievement can only be seen as somewhat accurate, as some studies have identified low achievement as an antecedent whereas others have not (Nansel et al., 2001; Olweus, 1979). Participants rated physical exceptionalities (e.g., blood sugar levels, illness, disability) as being less likely to be an antecedent to bullying. Although participants identified "stress from teachers" and "not getting teacher attention" as antecedents, they did not mention teachers' attitudes about aggression or how well teachers are able to identify bullies, both of which have been discussed in the literature (Espelage & Swearer, 2003). Participants did not mention school location as an antecedent, and therefore may need to be informed of increased incidences of bullying in urban schools in comparison to rural ones (Lagerspetz et al., 1982).

Cluster Four: Interpersonal Factors

Pre-service teachers identified factors related to peer belonging as being highly relevant to bullying behaviour, an antecedent which has been supported in other studies (Farmer, Leung, Pearl, Rodkin, Cadwallader, & Van Acker, 2002; Nansel et al., 2001; Pellegrini, 1998). They also cited poor relationships with teachers ("stress from teachers," "not getting teacher attention"), being different ("older in a younger school," "collective feeling person is different"), and social isolation ("difficulty making friends," "exclusion"). Lagerspetz et al. (1982) and Olweus (1993) suggested that divergent appearance was not significantly associated with bullying, and Graham and Juvonen (2002) and Nansel et al. (2001) suggested that differences in culture, ethnicity, and religion were weakly associated with aggressive interpersonal behaviour.

Cluster Five: Personality Factors

Participants identified "low self-esteem," "sadistic tendencies," "lack of inner strength," "difficulty expressing and dealing with emotions," and "attitudes about gender role perceptions" as being highly relevant antecedents to bullying. They also mentioned confidence ("confidence," "define other as other and self as norm," "attention seeking") and externalizing feelings ("frustration," "fear"), which aligns with peer-reviewed studies (Bosworth, Espelage, & Simon, 1999; Dodge, 1991; Olweus, 1994; Pope & Bierman, 1999; Shields & Cicchetti, 2001). Although jealousy, stress, fear, frustration, and other emotions were identified by participants, neither anger nor depression was mentioned. The omission of depression is of note because research has indeed suggested that it is associated with bullying (Austin & Joseph, 1996; Slee, 1995).

In summary, our Canadian sample of pre-service teachers generated 89 unique factors as antecedents to bullying. Through multidimensional scaling and hierarchical cluster analysis, five clusters of antecedents emerged as described above. Pre-service teachers had a good overall understanding of the antecedents to bullying. They had accurate beliefs about abuse and family dynamics as preceding bullying. They also accurately believed that financial instability, observation of peer bullying, and having an exceptionality may precede bullying, and they correctly identified confidence and externalizing factors as antecedents. Conversely, pre-service teachers had inaccurate beliefs about family size, parental age, poverty, ethnicity, physical size and strength, behavioural

exceptionalities, learning disorders, social status, social skills, divergent appearance, culture, and religion. Omissions included parental attachment, teachers' attitudes about aggression, teachers' ability to identify bullies, school location, quantity of pro-social behaviours, beliefs about aggression, and internalizing and externalizing emotional states.

Limitations, Future Research, and Implications

It is important to discuss several limitations of this study in regards to generalizability of results to other populations of pre-service teachers. Participants were recruited from one pre-service program, and therefore may not be a fair representation of other schools. Future research could address these issues by recruiting participants from a number of Faculties of Education from different geographical regions, by creating separate sets of data for different pre-service programs, and by examining differences in beliefs based on gender.

The results from this study can guide pre-service teacher educators on what to teach pre-service teachers so that they can recognize bullies and intervene. Antecedents identified in the research literature that were omitted or not accurately described by pre-service teachers need to be addressed by faculties of education, and accurate implicit knowledge needs to be reinforced to make it explicit and readily available. Furthermore, knowledge on the antecedents to bullying can help teachers understand that often bullies are themselves victims of circumstances beyond their control. Being accurately informed of the antecedents to bullying may help new teachers to develop empathy towards bullies that can help them to prevent and intervene in respectful and effective ways.

Bullying is pervasive in schools internationally, and Canadian schools have a higher incidence than some other countries. Thus, it is important to determine what new Canadian teachers know and don't know about bullying. In this study, we relied on an under-utilized but powerful mixed method study design to gather pre-service teachers' knowledge on the antecedents to bullying, and then compared these beliefs to the domain's collective findings to identify accuracies, inaccuracies, and omissions in knowledge. In comparison to the research literature, Canadian pre-service teachers had a good knowledge base on bullying but would benefit from explicit instruction on this topic during their program of studies.

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