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Attributional Beliefs of Canadian Trainee Teachers toward Students with a Learning Disability

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Teachers are one of the most important factors in successful inclusion of students with a learning disability in mainstream classrooms. Attitudes towards inclusion of certain students in classrooms have been mixed, and many attitudes are often developed during the pre-service training and early teaching years. This study investigated the attitudes of trainee teachers towards students with learning disabilities by analysing their attributional responses to hypothetical students. Accordingly, 181 graduating Canadian trainee teachers were surveyed and the results indicated that as students' ability levels decrease, teachers' sympathy levels rise, and the expectation of future failure increases. Moreover, as students' expended efforts increase, the teacher feedback becomes more positive, the frustration decreases, the sympathy levels rise, and the expectation of future failure decreases. With regards to differences between students with and without a learning disability, as students' ability levels increase the difference in trainee teachers' sympathy level increases. Furthermore, as students' expended efforts increase, the difference in teacher feedback given to students with and without a learning disability decreases, the difference in frustration and sympathy levels decrease, and the difference in expectations of future failure increases. Implications and recommendations for practice and research conclude the paper.

Les enseignants représentent un des facteurs les plus importants pour une l'inclusion réussie des élèves avec des troubles d'apprentissage dans les salles de classe ordinaires. Les attitudes face à l'inclusion de certains étudiants dans les classes sont variées, et plusieurs d'entre elles se sont développées au cours de la formation d'enseignant et les premières années d'enseignement. Cette étude a analysé les biais d'attribution de stagiaires face à des élèves hypothétiques de sorte à étudier leurs attitudes relatives aux élèves ayant des difficultés d'apprentissage. Ainsi, une enquête auprès de 181 stagiaires canadiens au terme de leurs études a indiqué que plus les compétences des élèves baissent, plus les stagiaires éprouvent de la sympathie pour eux et plus ils s'attendent à ce que les élèves échouent. De plus, plus les élèves font des efforts, plus la rétroaction des stagiaires devient positive, plus la frustration diminue, plus les stagiaires éprouvent de la sympathie et moins ils anticipent un échec de la part des élèves. Quant aux différences entre les élèves sans trouble d'apprentissage et les élèves ayant un trouble d'apprentissage, plus les compétences des élèves augmentent, plus la différence dans le niveau de sympathie éprouvée par les stagiaires augmente. En outre, plus les élèves font des efforts, plus la différence dans la rétroaction des stagiaires offerte aux élèves avec et sans un trouble d'apprentissage diminue, plus la différence des niveaux de frustration et de sympathie diminue et plus la différence quant aux attentes relatives aux possibilités d'échec augmente. Des retombées de l'étude et des recommandations relatives à la pratique et la recherche viennent conclure l'article.

Introduction

Students with learning disabilities (LD) form one of the largest groups of students with special educational needs in inclusive classrooms (Clark, 1997; Clark & Artiles, 2000). Canada has a three-tier system of government (federal, provincial and territorial, and municipal) with the provincial and territorial governments holding responsibility for funding public (government) schools, policy, development, and curricula. Canadian children with LD receive varying support according to which province they live in. Each province uses a varied definition of LD, reflecting an ongoing debate over how best to define, identify, support, and fund services for those with LD (Kozey & Siegel, 2008). Generally in Canada, LD is primarily funded from the provinces to the school districts (boards) (Hardy & Woodcock, 2014a; Kozey & Siegel, 2008). There was previously no federal legislation relating to LD and, with the exception of two provinces which referenced LD in their education acts (Ontario and Quebec), many other provinces and territories have all undergone revisions relating to LD definitions (Kozey & Siegel, 2008). In recent years the majority of the provinces and territories have shifted their definition of LD in their policies towards the official definition put forth by the Learning Disabilities Association of Canada (LDAC 2002) which defines LD as:

> A number of disorders which may affect the acquisition, organization, retention, understanding or use of verbal or nonverbal information. These disorders affect learning in individuals who otherwise demonstrate at least average abilities essential for thinking and/or reasoning. As such, learning disabilities are distinct from global intellectual deficiency. Learning disabilities result from impairments in one or more processes related to perceiving, thinking, remembering or learning. These include, but are not limited to: language processing, phonological processing, visual spatial processing, processing speed, memory and attention, and executive functions (e.g. planning and decision-making). (LDAC, 2002)

The majority of provinces now define LD as a disability, and it is considered as an intrinsic neurological disorder which is either caused by, associated with, or results in any number of selective processing deficits (Kozey & Siegel, 2008).

Educators' understandings and expectations of students with LD influence such students' actions and academic achievement. Consequently, the relationship between the educators' understanding and expectations of students with LD, and their subsequent treatment of them, is important. Teachers form attributional and teacher self-efficacy beliefs about the process of teaching during their training (Anderson, Walker, & Ralph, 2009; Daniels, Mandzuk, Perry, & Moore, 2011). This study therefore examined Canadian trainee elementary school teachers' responses to, and expectations of, students with LD, drawing on the theoretical framework of Weiner's Attribution Theory (Weiner, 1979, 1985, 1986).

Attribution Theory

Attribution theorists consider that "individuals seek to understand why events have occurred" (Schuster, Forsterlung & Weiner, 1989, p.192). Attributions (or causes) are "constructions imposed by perceivers to account for the relation between an action and an outcome" (Weiner, 1986, p.22). Attribution theory relates the explanation of an action often into two classifications consisting of internal (personal) and external (environmental) causes. Attribution theory has been applied within many different contexts which Weiner (1979) introduced to education.

Weiner applied attribution theory of motivation into education (1979, 1985, 1986), significantly influencing individuals' perceptions and behaviors towards academic-related events (Graham, 1991; Linnenbrink & Pintrich, 2002; Zhou, 2006). Weiner, introduced two directional attribution theories of motivation: inter and intra-personal theory. The intra-personal theory addresses how individuals perceive the cause of their actions and outcomes, whereas, the inter-personal theory addresses how individuals perceive the cause of other people's actions and outcomes (Tollefson, 2000). In the educational context, one of these perceived inter-personal attributions would be how the teachers perceive their students' actions and outcomes.

The most identified responsible causes for success and failure include ability, effort, task difficulty, and luck, when attribution theory is applied in academic-related settings, among which ability and effort are the most dominant determiners (Weiner, 1979, 1985). However, other factors such as mood, fatigue, illness, biases of others, and unique factors of specific situations are also possible causes related to academic achievement (Weiner, Russell, & Lerman, 1978).

Causes that explain an action (success or failure) that is perceived by an individual can be classified into three dimensions: locus of causality, controllability, and stability (Weiner, 1979, 1985, 1986). The dimension of locus of causality determines if the cause of action is internal or external to the individual. Causes such as luck and task difficulty are examples of external attributions, whereas, ability and effort are internal. Controllability determines whether causes to actions are within the individual's control or not. For example, ability is often perceived as an uncontrollable attribution, whereas, effort can be seen as a more controllable attribution. Finally, stability governs how stable the cause is. Ability is often considered as a stable cause, whereas effort can be seen as an unstable trait. Collectively, the attribution cause of an action can be located in one of eight possible cells consisting of two levels of locus of causality, two levels of controllability, and two levels of stability. For example, an individual may have been unsuccessful in a class activity and may ascribe the failure to bad luck, which is identified as an external locus of causality, uncontrollable, and unstable, according to Weiner (1979).

This two-by-two-by-two dimensional matrix can play a major part in an individual's emotional and consequently behavioral actions (Weiner, 1979, 1986). The locus of causality dimension can have a major influence on a person's self-esteem and pride; controllability can influence their social emotions that can represent their intra- and inter-personal judgment such as shame, guilt, pity and anger respectively; and, stability can relate to one's feeling of helplessness or helpfulness, resulting in possible changes to expectations of future outcomes (Weiner, 1979, 1986). For example, a student who is unsuccessful in a literacy test, may ascribe their failure to low ability (internal/uncontrollable/stable) resulting in lowering his or her self-esteem, feel shame, and may have reduced expectations of future success, showing resigned behavior. If the classroom teacher also ascribes the same cause of failure to low ability, he or she may feel sympathy to the student, offer help to them, and lower their expectations of the student in the future (Weiner, 1978, 1986).

Teacher Expectations

Students' motivation and academic performance can be influenced by teachers' attributional perceptions and expectations (Graham, 1991; Hinnant, O'Brien, & Ghazarian, 2009). How a teacher responds to a student's action (whether successful or not) may have a significant influence on the student's own perception of causality over their case (Graham, 1984).

Weiner, Graham, Stem and Lawson's (1982) study focused on teacher attributional relations and found that frustration and sympathy are positively related to student effort and ability respectively. These teacher attributional responses result in conveying to students expectations that teachers hold towards the students' future outcomes (Clark, 1997). For example, a student who receives frustration (anger) from the classroom teacher may attribute their cause of failure to low effort (internal, controllable, and unstable) and interpret from that a high expectation of success in the future. Alternatively, a student who received sympathy from the classroom teacher may attribute their failure to having a low ability (internal, uncontrollable, and stable) and interpret from that a low expectation of success in the future (Clark, 1997; Weiner, 1979, 1986). These affect-attributions can in turn influence the student's motivation and achievement strategies (Reyna, 2000). For example, when the classroom teacher continuingly shows sympathy to the student, their long-term motivation may be negatively influenced; as they may see the sympathy as a sign from the teacher that they are incapable of success (Reyna & Weiner, 2001). Similarly, students may often interpret teacher praise in the face of failure as a low ability cue as they may see this as a sign from the teacher that the child cannot do better (Clark, 1997).

As the example above implies, a teacher's feedback to students can also result in an attributional belief that the student holds. For example, praise and blame from others can make individuals infer whether their success or failure was caused by effort or ability (Meyer, Bachmann, Biermann, Hempelmann, Ploger, & Spiller, 1979). On the one hand, praise by a teacher following the failure of a classroom task can lead the students to infer low ability, and imply that the teacher believes the student will not improve and should not expect to improve in the future (Barker & Graham, 1987; Clark, 1997; Graham & Barker, 1990). On the other hand, an absence of praise following the failure of a classroom task can lead the students to infer a higher ability (Schunk, Pintrich, & Meece, 2008). In other words, sympathetic generous feedback can be given to students due to positive intentions by teachers, but they can be seen as negative perceptions of low ability (Graham & Barker, 1990; Woodcock & Vialle, 2010, 2011).

Teachers may likely view students with LD as internal, stable, and uncontrollable (Clark, 1997). Such a statement implies that teachers may be more positive with their feedback to students, less frustrated and more sympathetic, and hold lower expectations of these students. Clark's study with general elementary teachers in the United States found that the teachers tended to praise students with LD more than their non-LD (NLD) counterparts in failed situations, expressed more sympathy and less frustration towards students with LD, and held the belief that students with LD would fail more in the future (1997). Similar findings have been reached by Tollefson and Chen's (1988) research with K-12 teachers, Georgiou, Christou, Stavrinides and Panoura's (2002) research with elementary teachers in Cyprus, and Woodcock and Vialle's research with trainee secondary school teachers (2010) and trainee elementary school teachers (2011) in Australia. However, Woodcock and Jiang's study with trainee teachers (2012) and in-service teachers (2013) in Suzhou, Jiangsu Province, China, found that with the exception of sympathy, Chinese teachers and trainee teachers generally did not differ in the feedback that they gave, the frustration that they felt, and the expectation of future failure between students with and without LD. This suggests that Chinese perceptions about LD status are less influential than effort and ability. Moreover, the studies in Jiangsu Province, suggest that LD status has little difference on the attributions to students' academic outcomes as well as the demand level of performance in the future. Thus, it can be generally concluded, at least in Western societies, attributional cues that teachers convey to students with LD are that they have lower ability than non-LD students and should be expected to have lower achievement.

The Influence of Teachers' Attributions

Teachers' attributions and expectations can be influential towards students' performances and achievements (Woodcock & Vialle, 2011). Students internalise cues from the classroom teacher to base their own attributions for success and failure (Clark, 1997; Heiman, 2006; Woodcock & Vialle, 2010). Research has shown that teachers are likely to show frustration or sympathy following students' performances in the classroom, depending on the expectations of the students (Juvonen, 2000; Reyna, 2000; Reyna & Weiner, 2001). A student may interpret frustration from their teacher as a cue of higher expectation. The teacher's reaction of frustration may suggest that the outcome was in the control of the student, which could imply that the student has a high ability (Woodcock & Vialle, 2011). It could be appealing to suggest that teachers attribute students' success to internal traits (such as ability and effort), and failures to external uncontrollable traits (such as luck) or internal controllable traits (such as effort) resulting in a positive attribution style (building and holding higher expectations for oneself). Educators need to consider the attributional beliefs that they hold concerning students with LD (Lackaye & Margalit, 2006). There can often be misperceptions of teachers towards students with LD, and based on the label of LD judge the students' ability rather than the characteristics and needs of these students (Lackaye & Margalit, 2006; Tournaki, 2003). This can negatively result in teachers developing low expectations and creating what Eccles and Wigfield (1985) coined the "golem effect". That is, if a teacher believes that a student is likely to fail in the future, then they are likely to behave towards the student in ways that will, more than likely, bring about future failure. This can then result in students lowering their own expectations of themselves. If students with LD hold lower beliefs in their ability to achieve in education then future prospects can be devastating.

Student Attributions

It is generally found that students have a 'positive attribution style' or 'normal self-esteem attribution' (Jacobson, Lowery, & DuCette, 1986). This is where they attribute success to internal causes (controllable or uncontrollable) and failure to external causes (external and uncontrollable). For example, when students attribute success to effort and ability (internal, controllable / uncontrollable), they have a higher self-esteem, higher motivation, and future expectations for success (Weiner, 1979, 1985, 1986).

Students with LD though can often have a 'negative attribution style', whereby they attribute success to external and uncontrollable traits, and failure to internal and uncontrollable traits (Waheeda & Grainger, 2002). Consequently, when students with LD succeed, they often attribute it to traits such as luck (external, uncontrollable and unstable) (Nunez, Gonzalez-Pumariega, & Gonzalez-Pienda, 1995), and when they fail, they often attribute it to traits such as lack of ability (internal, uncontrollable, and stable). The consequences of this is then a likely reduction in self-esteem, motivation, and expectation of future success, which in turn can develop a learned helplessness (Cemalcilar, Canbeyli, & Sunar, 2003; Waheeda & Grainger, 2002). Moreover, Nunez, Gonzalez-Pienda, Gonzalez-Pumariega, Roces, Alvarez, Gonzalez, Cabanach, Valle, and Rodriguez (2005) found that students with LD hold a 'maladaptive attributional style' where students hold the traits of low ability achievement expectations, low persistence at classroom tasks, and low academic self-esteem. Once students hold these maladaptive attributional style traits, they are likely to feel a sense of learned helplessness.

As students with LD are more prone to develop a set of negative attibutional causal beliefs the thought of teaching them to attribute their success to internal traits and failures to external traits or internal controllable traits (positive attributional style) may be appealing. However, teachers need to hold the same attributional beliefs if students are to believe in themselves.

There have been links between teachers' inter-personal attributions and students' outcomes in general. However, there is little research that explores teachers' inter-personal attributions of students with LD. Teachers' understandings, beliefs, and expectations can be difficult to change throughout their career (Woolfolk-Hoy & Spero, 2005), and so identifying trainee teachers' inter-personal attributions is useful, but has been neglected in the literature until recently (Woodcock & Jiang, 2012; Woodcock & Vialle, 2010, 2011). Accordingly, this study aimed to expand on Clark's (1997) original study in the US, Woodcock and Vialle's studies in Australia (2010, 2011), and Woodcock and Jiang's study in China (2012), and explore the attributional causes of educational outcomes for students with LD as perceived by trainee elementary teachers in Canada. This study compared their responses to students with and without LD, focusing on whether Canadian trainee elementary school teachers assigned the students' outcomes to a positive or negative attribution. Given the previously discussed causal properties of LD, the following hypotheses have been developed—Canadian trainee teachers will:

- give greater positive feedback to students with LD than their non-LD counterparts;
- feel less frustrated towards students with LD than non-LD students;
- feel more sympathetic towards students with LD than their non-LD peers; and,
- hold greater expectations of future failure for students with LD than for non-LD (NLD) students.

Method

The research explored to what extent trainee teachers' knowledge of the presence or absence of a LD would influence (a) the feedback given to a hypothetical boy based on his ability and the effort expended, (b) the frustration and sympathy felt towards each boy, and (c) the expectations held for each student's future.

Context of the Study

The trainee teachers in this study were drawn from a University in Ontario and were near completion of a one year teacher training degree (elementary). The one year program undertaken by the trainee teachers in this study prepares candidates to teach in primary-junior (JK-6) classrooms in Ontario. The program focuses on developing practical and professional skills based on theoretical and conceptual understandings of teaching. The aim is to prepare transformative and reflective teacher practitioners ready to assume their first teaching position. Trainee teachers spend two days a week in schools, and two days a week at the university, throughout the program. In addition, there are extended teaching blocks in each semester (three to four weeks) and each term is spent with a different age group. This intensive practice teaching experience allows candidates, who are grouped in schools in teams of four-six, to make a significant contribution to, as well as learning from, the school community.

Of the ten subjects offered, all students complete a foundation subject titled Inclusive

Education which introduces students to the main concepts of inclusive education and students with special educational needs.

Participants

Participants included 181 trainee elementary teachers enrolled in a one year teacher education program at a university in a large central province of Canada, 18% of whom were male and 82% female, which reflected a similar ratio of male and female elementary teachers in Canada (2011 Census). In this institution, trainee teachers begin their teaching program after the completion of a three-year general undergraduate degree course.

Instrument

The survey instrument was adapted from Clark's (1997) original study which examined the way in which American elementary teachers perceived the achievement of students with LD compared to students without LD. Eight vignettes described hypothetical boys who had just taken a typical classroom test and failed. The vignettes did not identify the cause of the hypothetical boys' failures in order to stimulate causal explanations by the participants. The description of each vignette provided three types of information: a statement of student ability, the typical pattern of effort expended by the student in the classroom, and information on academic performance. The descriptions identified half of the boys as LD and half as NLD, half as high ability and half as low ability, and half as expending high effort and half as expending low effort, but specific terms were not used. The boys were matched on ability (high/low), on typical effort (high/low), and the presence/absence of a LD (LD/NLD). Finally, a matrix of 2 (ability) by 2 (effort) by 2 (LD/NLD) were formed. An example of a vignette (high ability/low effort/NLD) is:

> Phillip is a student in your class. He has greater aptitude for academic tasks than most children in the class. Although he occasionally does excellent work, he is usually off task and does not participate in class often. He rarely completes class assignments and does not do much of his homework.

After respondents had read the vignettes, they were presented with four questions which asked them: (a) what feedback they would give to the child (very positive (+5) – (-5) very negative); (b) the degree of frustration that they would feel towards the child (very little (0) – (6) very much); (c) the degree of sympathy that they would feel towards the child (very little (0) – (6) very much); and (d) their expectation of the likelihood of the boy's future failure (very unlikely (0) – (6) very likely). Each of the four questions utilized a Likert scale response (for further detail regarding the vignettes please refer to Woodcock & Vialle, 2011). All of the vignettes were presented in the survey randomly to avoid order effects. All 181 participants responded to all of the vignettes. The instrument's sole use of boys was retained in order to eliminate the potential confounding variable of the child's gender on the participants' attributions.

Procedure

A pilot study of the instrument was conducted to obtain feedback on the questionnaire items

with another 36 trainee teachers (not included in this data set). Based on their feedback, very minor format changes to the instrument were made. Changes, such as the formatting of the vignettes and questions, and adaptation of the language and terms from the US to those used in Canada were made. For this study the cohort of participants were in the final semester of their course and were surveyed at the end of the semester. Ethics approval was obtained by the relevant university committee.

Data Analysis

A two (N/LD) by two (ability) by two (effort) multivariate analysis of variance with repeated measures was conducted for the four dependent measures: feedback, frustration, sympathy, and expectation of future failure. Multivariate analysis of variance with repeated measures was used for this analysis as the same measures can be collected multiple times for each subject but under different conditions. Of particular interest were the differences of responses between the students with LD to students without LD on each of the dependent measures. Thus, a post-hoc analysis using paired samples t-tests was also executed, matching all LD vignettes with their NLD counterparts (e.g. LD-low ability-high effort vignette matched with NLD-low ability-high effort vignette). This was to examine the most extreme differences using t-values and a Bonferroni-adjusted significance of .002.

The following sections report the results of the repeated measures and post-hoc t-test analyses for feedback, frustration, sympathy, and expectation of future failure. Each section reports the results of the repeated measures analysis by discussing the main effects for each variable (LD status, ability level, and effort expended) and combined two and three-way interactions. The repeated measures in each section are then followed by the results from the post-hoc t-test analyses.

Results

Overall, significant main effects, from the multivariate analysis of variance repeated measures, for LD status, $F (1, 181) = 17.256$, $p < .001$, $\eta_p^2 = .290$; ability, $F (1, 181) = 25.728$, $p < .001$, $\eta_p^2 = .378$; and, effort, $F (1, 181) = 88.177$, $p < .001$, $\eta_p^2 = .676$, were found for attributional response. In particular, a three-way interaction of LD, ability and effort was significant, $F (1, 181) = 7.548$, $p < .001$, $\eta_p^2 = .101$, but it was LD status and effort that produced the largest interaction effect, $F (1, 444) = 22.704$, $p < .001$, $\eta_p^2 = .350$. The following sections reported the univariate analysis of variance using repeated measures for each individual attributional response.

Feedback

As indicated in Table 1, a significant main effect for LD status, $F (1, 181) = 23.197$, $p < .001$, $\eta_p^2 = .119$, was found for feedback. As Table 1 shows, this can be noticed in the η_p^2 and mean score differences between feedback given to the students with and without LD with greater positive feedback given to the students with LD. There was no significant main effect found for ability, ($p > .05$), when considering feedback. Finally, a significant main effect for effort, $F (1, 181) = 171.066$, $p < .001$, $\eta_p^2 = .499$, was found for feedback. The level of effort expended was the most highly significant main effect found for feedback. This can be seen in the η_p^2 and mean feedback scores given to the low effort students and high effort students.

Table 1

Trainee Teachers' Significant Feedback

	LD		NLD	
	M	SE	M	SE
LD Status	2.90	.119	2.60	.112

	Low		High	
	M	SE	M	SE
Effort	2.05	.152	3.46	.099

	LD LE		LD HE		NLD LE		NLD HE	
	M	SE	M	SE	M	SE	M	SE
LD*Effort	2.33	.152	3.48	.106	1.76	.167	3.44	.103

Trainee teachers considered a two-way interaction between a boy's level of effort expended and his LD status F (1, 181) = 25.267, p< .001, η_p^2 = .118, when giving feedback. Also, LD status was particularly influential for the students who expend low effort. Finally, there was no significant three-way interaction effect between LD, ability, and effort in regards to feedback. Thus feedback for test failure was governed by the students' amount of effort expended, with trainee teachers' knowledge of a child's LD status having a mediating influence on the feedback given.

As seen in Table 1, trainee teachers' knowledge of a student's learning disability influenced the decision about feedback given to the student. The post-hoc t-test results complemented the findings from the repeated measures analysis and confirmed that this was particularly so with students who expended low effort. The student with LD, who has high ability and expends low effort, t(181) = 9.876, p< .001, and the student with LD, who has low ability and expends low effort, t(181) = 7.935, p< .001, received significantly greater positive feedback than their NLD counterparts. However, among the students who expended high effort, there were no significant differences amongst the feedback (see Table 1).

Frustration

As illustrated in Table 2, a significant main effect for LD status, F(1, 181) = 17.051, p< .001, η_p^2 = .090, was found for trainee teacher frustration. The η_p^2 and mean score difference between frustration felt toward the students with and without LD indicated this. However, there were no significant main effects for ability, (p> .05), indicating no differences in trainee teachers' frustrations toward high or low ability level students. Moreover, a significant main effect found for frustration was effort, F (1, 181) = 322.080, p< .001, η_p^2 = .652. This can be seen in the η_p^2 and mean scores of frustration felt toward the low effort students and high effort students.

Trainee teachers considered a two-way interaction between a boy's level of effort expended and his LD status with a significant effect, F (1, 181) = 74.061, p< .01, η_p^2 = .301, in relation to feelings of frustration. Thus, LD status was particularly influential with those who expended low amounts of effort with regards to levels of frustration.

Table 2

Trainee Teachers' Significant Frustration

	LD		NLD					
	M	SE	M	SE				
LD Status	3.11	.077	3.33	.078				
	Low		High					
	M	SE	M	SE				
Effort	3.99	.094	2.45	.075				
	LD LE		LD HE		NLD LE		NLD HE	
	M	SE	M	SE	M	SE	M	SE
LD*Effort	3.67	.098	2.56	.083	4.31	.103	2.36	.082

Also, effort was more influential in teachers' frustration level for the students without LD who expended low and high effort than students with LD who expend low and high effort. Finally, there was no significant three-way interaction effect among LD, ability, and effort. Thus, the frustration felt towards students was governed by the level of effort expended and trainee teachers' knowledge of a child's LD status.

As seen in Table 2, trainee teachers' knowledge of a child's learning disability influenced the feeling of frustration towards the student. The post-hoc t-test results complement the findings from the repeated measures analysis and confirm that this is particularly so in relation to effort expended. Those students in the study with LD who expend low effort ($t(181) = -8.781$, $p < .001$; $t(181) = -6.068$, $p < .001$) evoked less frustration from the trainee teachers than their NLD counterparts. Concomitantly, the student in the study with LD who expended high effort and was of a high ability ($t(181) = 4.367$, $p < .001$) evoked greater frustration from trainee teachers than his NLD counterpart. Thus, effort expended appears highly influential as students expending high effort elicited far less frustration than their low effort peers.

Sympathy

A significant main effect for LD status, $F(1, 181) = 27.798$, $p < .001$, $\eta_p^2 = .175$, was found for sympathy (see Table 3), with mean differences in trainee teacher sympathy toward the students with and without LD. A significant effect for ability, $F(1, 181) = 24.755$, $p < .001$, $\eta_p^2 = .130$, was also found for sympathy. This is indicated in the η_p^2 and mean differences in trainee teacher sympathy towards η_p^2 low ability and high ability students. A significant main effect for effort, $F(1, 181) = 55.751$, $p < .001$, $\eta_p^2 = .245$, was found for sympathy. The significance is noticeable with the η_p^2 and mean score differences between the students who expend low effort and students who expend high effort.

Trainee teachers considered a two-way interaction between a student's LD status and amount of effort expended when eliciting sympathy towards them, $F(1, 181) = 12.399$, $p < .001$, $\eta_p^2 = .039$e). Furthermore, the LD status and ability level of the student also appeared to influence trainee teachers' sympathy, $F(1, 181) = 10.460$, $p < .001$, $\eta_p^2 = .031$. Finally, there was no significant three-way interaction effect among LD, ability, and effort in regards to sympathy.

Table 3

Trainee Teachers' Significant Sympathy

	LD		NLD					
	M	SE	M	SE				
LD Status	4.24	.077	3.97	.081				
	Low		High					
	M	SE	M	SE				
Ability	4.24	.079	3.97	.080				
Effort	3.87	.078	4.34	.084				
	LD LA		LD HA		NLD LA		NLD HA	
	M	SE	M	SE	M	SE	M	SE
LD*Ability	4.33	.084	4.16	.085	4.16	.086	3.79	.095
	LD LE		LD HE		NLD LE		NLD HE	
	M	SE	M	SE	M	SE	M	SE
LD*Effort	4.06	.083	4.43	.086	3.68	.090	4.26	.099

As seen in Table 3, trainee teachers' knowledge of a child's LD status significantly influenced how the sympathy trainee teachers felt toward them. The post-hoc t-test results complement the findings from the repeated measures analysis. The most significant difference is between the two students with and without LD who expended low effort and have high ability, $t(181) = 7.813$, $p < .001$. This difference is followed by the two students with and without LD, who expended low effort and have low ability, $t(181) = 5.387$, $p < .001$.

Expectancy of Future Failure

A significant main effect for LD status, $F(1, 181) = 25.045$, $p < .001$, $\eta_p^2 = .149$, was found for trainee teachers' expectations of a student's future failure (see Table 4). The η_p^2 and mean score differences between expectations of future failure for students with and without LD is indicated. A significant main effect for ability, $F(1, 181) = 90.120$, $p < .001$, $\eta_p^2 = .344$, was found for trainee teachers' expectations of a student's future failure. The differences in η_p^2 and mean scores between the expectations of future failure for high ability and low ability students indicates this. A significant main effect for effort, $F(1, 181) = 126.814$, $p < .001$, $\eta_p^2 = .424$, was found for trainee teachers' expectations of a student's future failure. This is indicated in the η_p^2 and mean expectation scores given to the students who expended low effort and students who expended high effort.

Trainee teachers considered a two-way interaction between a student's LD status and effort when eliciting their expectation of future failure for the student, $F(1, 181) = 16.190$, $p < .001$, $\eta_p^2 = .096$. Finally, there was no significant three-way interaction effect among LD, ability, and effort in regards to trainee teachers' expectations of future failure.

As seen in Table 4, trainee teachers' knowledge of a child's LD status significantly influenced the expectation they have of the child's future failure. The post-hoc t-test results strengthen the findings from the repeated measures analysis. The most significant difference is between the two

Table 4

Trainee Teachers' Expectations of Future Failure

	LD		NLD					
	M	SE	M	SE				
LD Status	4.19	.066	3.77	.063				
	Low		High					
	M	SE	M	SE				
Ability	4.22	.068	3.74	.061				
Effort	4.31	.068	3.65	.064				
	LD LE		LD HE		NLD LE		NLD HE	
	M	SE	M	SE	M	SE	M	SE
LD*Effort	4.33	.078	3.86	.070	4.29	.072	3.45	.076

students with and without LD who expended high effort and have low ability, $t(181) = 6.719$, $p < .001$. This difference is followed by the two students who expended high effort and have high ability, $t(181) = 4.167$, $p < .001$.

Discussion

The findings suggest strongly that as students' ability levels decrease, the sympathy levels rise, and the expectation of future failure increases. Moreover, as students' expended efforts increase, the feedback becomes more positive, the frustration decreases, the sympathy levels rise, and the expectation of future failure decreases. Regarding differences between students with and without LD, as students' ability levels increase the difference in sympathy levels increase. Moreover, as students' expended efforts increase, the difference in feedback given to students with and without LD decreases, the difference in frustration and sympathy levels decrease, and the difference in expectations of future failure increases.

In summary, the results show that LD does influence this sample of Canadian trainee elementary school teachers' responses to students' test failures. The work of Weiner and Kukla (1970) specified that teachers' responses towards test failure of students who have LD, would be the same as their NLD peers should LD not have any influence. However, as the results of this study have shown, when the cause for failure becomes more controllable, this sample of Canadian trainee elementary school teachers gave greater positive feedback, are more sympathetic, and less frustrated toward students with LD than their NLD counterparts. In addition, the more controllable the cause of failure, the greater was the expectation of future failure that these Canadian trainee elementary school teachers held for students with LD compared to their NLD counterparts. With the exception of sympathy (feedback, frustration, and expectation of future failure), a greater difference between high and low ability/effort students occurred within students without LD than within students with LD. Regarding students without LD, low ability and low effort were clear correlational explanations for their failure, which Jacobson et al (1985) termed "normal self-esteem attribution". As for students with LD there were less differences between high and low ability/effort students. Thus, low ability and

low effort were not always clear correlational explanations for their failure.

The student without LD who is of high ability and expended low effort experienced the most negative feedback, the greatest frustration, and least sympathy from these Canadian trainee teachers. These trainee teachers in Canada clearly perceived this boy's failure to be within his personal control and held him responsible for his outcomes. Conversely, the students with and without LD who were of low ability and expended high effort received the most positive feedback, least frustration, and greatest sympathy. The Canadian trainee teachers in this study responded more positively to these students as the failures were perceived to be out of their control.

Implications

The attributional view that these Canadian trainee elementary teachers hold towards students with LD is a vital one to consider. Students with LD need to be viewed in a more positive attribution style (Woodcock & Vialle, 2011) so that attitudes and expectations of these students can be improved. A potential first step toward addressing this situation is for policy makers, government, and departments across the provinces of Canada to address the issue of using a defined definition and identification process towards learning disabilities. The majority of provinces have begun to do so over recent years. However, it is also important that in defining and explaining learning disabilities and within policies surrounding funding and support for these students, that, guidelines are in place justifying these students' capabilities and not just referring to their characteristics from a medical standpoint. It is important that each ministry of education in all provinces promotes these students in an educational way focusing on their capabilities and potential as well as challenges and difficulties. This would then more likely follow on to the second step towards addressing this situation. That is, tertiary institutions can better prepare their trainee teachers with the understanding of students with LD in a more positive attributional style belief (like they do for students without LD), and focus not just on their deficits and difficulties but strengths and positive characteristics.

Future research may employ various other methods of data collection such as mixed method approaches or qualitative methods, and also consider using the same vignettes, but with girls as opposed to boys to determine whether attributional responses differ due to gender. Comparisons between trainee and in-service teachers within Canada as well as elementary and secondary school teacher comparisons could also be considered in future studies. Finally, cross-national comparisons can be investigated to provide comparative data. This may be especially important given the varied definitions and terminology used across various nations to identify and educate students with LD. Given the present Canadian government's intention to establish educational consistency at a national level (Kozey & Siegel, 2008), such a study would be timely.

Limitations of the Study

The results of the current study show that the Canadian trainee teachers in this study do respond differently to students with and without LD depending on their ability and effort expended levels. However, there are some limitations to the current study. Although the use of vignette scenarios was to elicit practical scenarios of what trainee teachers would do in response to students' actions and outcomes, they may produce responses which differ from the responses teachers would make in natural real life settings (Lee, Hallahan & Herzog, 1996). Also, the data

were collected at the end of a lecture and although the response rate was high, the small number of trainee teachers who were not in attendance did not have the opportunity to participate in the study. This may or may not have had an influence on the results of the study. Finally, the vignettes were originally designed by Clark (1997) to focus on boys due to a dramatically lower percentage of girls diagnosed with LD at the time. Further exploration of measuring responses to girls could certainly warrant future research as well as comparison of gender differences. However, the current study sought to build on the previous research involving attribution theory and achievement, including students with LD (Clark, 1997; Weiner & Kukla, 1970; Woodcock & Jiang, 2012; Woodcock & Vialle, 2010, 2011), and does indicate that differences in attributional responses between students with and without LD occurred.

Conclusion

Attribution theory can play a significant part in a student's self-efficacy belief in their own ability to succeed. Others' attributional beliefs (such as that of a teacher) toward students (inter-personal attribution) can also play a part in developing a student's own causal beliefs (intra-personal attribution) and expectations of future achievement. The movement of inclusion and changing perceptions, understandings, and expectations of teaching all students and meeting everyone's needs represent significant challenges (Hardy & Woodcock, 2014b). The development of teacher training programs to address these emerging challenges in relation to students with LD is clearly related to the focus of this study. Canadian trainee teachers' perceptions and expectations of students with LD need to be carefully understood and addressed through their training.

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