Examining Practicing Teachers' Cognitions and Emotions Towards Students with FASD Using Attribution Theory

by

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Abstract

The importance of teachers' emotions has been well-established in educational research, particularly when confronted with challenging student behaviour. Fetal Alcohol Spectrum Disorders (FASD) impact many Canadian children, and these students are likely to experience difficulty in the classroom. However, no research has examined the emotions of teachers specifically towards students with FASD. Therefore, the purpose of this study was to examine the cognitions and emotions of practicing teachers in regards to working with students with FASD. Attribution theory provided the theoretical framework by which to explain teachers' cognitions and emotions. I employed a cross-sectional survey design among a sample of 200 practicing teachers from a Western Canadian city. I then used a path analysis to examine the direct effects of causal attributions on student responsibility and teachers' emotions (i.e., anger and hope), and whether responsibility mediated the relationship between attributions and emotions. Overall, the hypothesized model fit the data well. Contrary to the hypotheses, responsibility did not mediate the relationship between attributions and teachers' emotions. Instead, causal attributions were directly related to both responsibility and emotions (i.e., anger and hope). Implications of these findings are discussed regarding their importance in education for both teachers and students, as well as directions for future research.

Preface

This thesis is an original work by Jona Frohlich. The research project, of which this thesis is a part, received ethics approval from the University of Alberta Research Ethics Board, No. Pro00061298, January 18th, 2016.

One of the articles referred to in this thesis has been submitted for publication as E. M., Atkinson, J. R., Frohlich, L. M., Daniels, & J., Pei, "*Pre-service teachers' causal attributions for FASD and their teaching self-efficacy.*" I was responsible for a portion of the manuscript composition as well as preparing it for publication. E. Atkinson was the principal investigator responsible for data collection and analysis, and a large proportion of the manuscript composition. L. M. Daniels was the supervisory author and was involved with concept formation and manuscript composition. J. Pei also assisted with concept formation and contributed to manuscript edits.

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Examining Practicing Teachers' Cognitions and Emotions Towards Students with FASD Using Attribution Theory

It is widely noted among educational researchers that teaching is an emotional profession (Schutz, 2014). Teachers in the classroom often face large amounts of work-related stress (Chang, 2009), report intense emotional situations with their students (Sutton, 2007), and are prone to high levels of burnout as a result of emotional exhaustion (Klassen & Chiu, 2010). The emotions that teachers experience in the classroom have implications for their own lives, and the students they teach (Frenzel, 2014). Teachers' emotions are often associated with teaching strategies, quality of instruction, helping behaviour, psychological well-being, relationships with students, and student achievement (Becker, Goetz, Morger, & Ranellucci, 2014; Frenzel, 2014).

The emotional lives of teachers may be particularly stressful when working with children with disabilities due to the increased supports required by these students and the challenges they pose in the classroom (Greene, Beszterczey, Katzenstein, Park, & Goring, 2002). For example, one study found that teachers reported significantly greater levels of stress when children with ADHD exhibited oppositional and aggressive behaviours in the classroom (Greene et al., 2002). On the other hand, one study found that the prosocial behaviour of children with severe behavioural or emotional disorders predicted teachers' well-being, which was conceptualized as lower levels of emotional exhaustion (Breeman et al., 2015).

According to this research, teachers' emotions may be equally as important to consider among populations of students who may be struggling in the classroom. One population of particular importance are children with Fetal Alcohol Spectrum Disorders (FASD), a group that has received substantially less attention in the education literature. It is currently estimated that 1 out of 100 babies in Canada will be born with a FASD (Popova, Lange, Burd, & Rehm, 2015).

This is a term used to describe the potential brain damage and subsequent disorders that can result if a fetus is exposed to alcohol. This brain damage can present itself in various cognitive and developmental delays, such as specific physical abnormalities, learning disabilities, behavioural challenges, and social-emotional problems (Green, 2007), which represents the "spectrum" component of the disorder. The range of possible challenges resulting from prenatal alcohol exposure can make the school setting especially difficult for these children (Millar et al. 2014). It is therefore critical that researchers understand the implications these disorders can have on children who are affected, as well as the optimal way to support them at school.

FASD can present itself in a range of difficulties that also vary by child. For example, many children with FASD experience cognitive delays in specific areas such as working memory, processing speed, and executive functioning (Millians, 2015; Rasmussen, 2005), which often impact their ability to learn. They may also experience difficulty with language, communication, and abstract reasoning (Millar et al., 2014). These difficulties can make the everyday tasks of a classroom (e.g., listening, learning new concepts, following instructions) extremely challenging. Similarly, children with FASD often experience specific learning disabilities, which create additional challenges for them in the classroom (Millar et al., 2014; Millians, 2015). These specific learning disabilities impact their ability to learn skills in a particular subject, and as a result may hold them back academically. In addition to the cognitive and academic challenges, FASD can result in a number of behavioural and emotional challenges. Children with FASD often experience difficulties with impulse control, attention, adaptive behaviour, social skills, and comorbid mental health problems (Green, 2007; Millar et al., 2014; Mukherjee, Hollins, & Turk, 2006; Pei, Denys, Hughes, & Rasmussen, 2011).

Considering the difficulties children with FASD are likely to face in the classroom, it is critical that researchers understand the emotional experience of teachers when working with this population of students, and then work towards providing the appropriate training to support them. This is particularly important considering that inclusion in regular classrooms is the predominant educational format in Alberta schools (Alberta Teachers Association, 2014). Unfortunately, previous research suggests that teachers often feel unprepared to work with this population of students (Dybdahl & Ryan, 2009). For example, teachers have been found to be aware of some observable difficulties of FASD, but may lack an in-depth understanding of the *underlying* difficulties of these students. As a result, these teachers may not have the knowledge to apply appropriate classroom practices in order to help these students succeed (Pei, Job, Poth, O'Brien-Langer, & Tang, 2015). Dybdahl and Ryan's (2009) study yielded similar results among a sample of practicing teachers, in that teachers reported having received inadequate training to support this population of students. In the context of the current research, it is possible that these feelings of unpreparedness may increase the emotional stress of teachers when working with this population.

Although teachers' emotional experiences in the classroom at a broader level have been discussed in previous research, no research has examined teachers' emotions specifically towards students with FASD. One theory that is relevant to understanding teachers' emotional experience is attribution theory (Weiner, 1985). Attribution theory poses a sequence of thoughts, feelings, and behaviours for a given outcome that may prove useful in understanding teachers' emotions in this context. A main advantage of using an established theory to guide research is that it allows researchers to organize constructs included in their study, systematically form hypotheses, and provide an understanding of the relationships among variables. The use of a previously

established theory proved useful for the current study, as the cause of behavioural challenges for children with FASD are often viewed as complicated by teachers (Atkinson, Frohlich, Daniels, & Pei, 2017). Thus, the purpose of the current research was to use attribution theory (Weiner, 1985) as the guiding theoretical framework to increase our understanding of the cognitions and emotions of practicing teachers when teaching children with FASD.

Literature Review

Theoretical Framework: Attribution Theory

Weiner's attribution theory (1985) has been widely used to explain human cognitions, emotions, and behaviours in a number of contexts (Weiner, 2010). The theory states that humans seek to explain events that occur in their lives, and that these explanations give rise to predictable cognitive, emotional, and behavioural responses. Attribution theory has been used to explain parole decisions (Carrol, 1978), health in old age (Stewart, Chipperfield, Perry, & Hamm, 2016), and athletic strivings (Parker, Perry, Hamm, Chipperfield, & Hladkyj, 2016; Rascle, Le Foll, & Higgins, 2008; Rascle et al., 2015). One domain in which the theory has been particularly salient is in education and academic achievement settings, where attributions made by both students and teachers have been examined (Georgiou, Christou, Stavrinides, & Panaoura, 2002; Perry, Stupnisky, Daniels, & Haynes, 2008; Reyna & Weiner, 2001). Within this domain, the theory has been used to explain a variety of outcomes such as: academic achievement, motivation, emotions, mental health and behaviour (Andreou & Rapti, 2010; Perry, Stupnisky, Hall, Chipperfield, & Weiner, 2010; Wang, Hall, & Rahimi, 2015). Due to its applicability across a variety of contexts, specifically education, this theory provided a strong framework for the current study.

Weiner's attributional model begins with the occurrence of an event. Weiner posits that individuals engage in a causal search in which they aim to ascribe meaning to this event, particularly when it is unexpected, negative, and important. One element of attribution theory that is important to recognize is that it is the perceived cause of an event that is influential in shaping one's cognitions, emotions and subsequent behaviours (Weiner, 1985). In other words, the perceived explanation for an event matters more than the actual cause, and different individuals may perceive the same event in unique ways. Explanations for the cause of this event are what Weiner refers to as ascriptions (1985), and what I will hereafter refer to as attributions. According to the theory, the attributions an individual makes for any event can be described along three causal dimensions: locus of causality, stability, and controllability. Locus of causality refers to the extent with which the cause was internal (i.e., something within the individual), or external (i.e., something outside of the individual). Stability refers to the likelihood of an outcome changing in the future (i.e., unstable), or remaining the same (i.e., stable). Finally, controllability describes the extent to which the individual had control over a particular outcome. In other words, if the individual felt that they had an influence over the outcome it would be described as controllable, whereas if they did not, the event would be described as uncontrollable. Using these causal dimensions allows for the simplification of the infinite possible reasons for why an event occurred. Furthermore, it is the dimensions that in turn are theorized to predict subsequent cognitions, emotions, and behaviours. This simplification process is particularly relevant when considering the many possible explanations a teacher may have for student behaviours in the classroom.

For each of the three causal dimensions, a specific sequence of cognitions and emotions can be predicted. Furthermore, the consequences differ based on whether the attribution for an

event is made about the self (i.e., self-directed), or about others (i.e., other-directed). The locus of causality dimension has not been found to have a substantial influence on a particular cognition (Weiner, 1985), but is likely to influence the self-directed emotions of pride and self-esteem. The stability dimension influences a cognition regarding the expectancy of success in the future. If an expectancy of future success exists, this then elicits the emotion of hope. Alternatively, if there is no expectation for success in future situations, this elicits the emotion of hopelessness. Finally, the controllability dimension influences the cognition of responsibility. This can take the form of personal responsibility, which elicits guilt or shame, or as an assignment of responsibility for another individual, which elicits anger or pity. For example, when teachers encounter a particularly challenging set of behaviours from a student with FASD, this outcome could trigger a causal search as to why this student is behaving this way. If teachers perceive this behaviour to be something controllable (e.g., lack of effort), they will hold that student responsible, and are likely to feel anger towards them. They may also feel hope towards that student because they expect the child to be able to make changes to their behaviour in class. Alternatively, if they perceive the student's misbehaviour to be uncontrollable by the child (e.g., lack of self-control as a consequence of FASD), they will *not* hold that student responsible, and they will not feel anger towards them. However, they may also not feel hope towards that student either as the teacher may believe that the student is helpless in the face of their diagnosis. This example, although hypothetical, illustrates the variety of responses teachers may have for a given outcome among their students. Typically, uncontrollable and unstable attributions for negative outcomes are associated with adaptive cognitions, emotions, and behaviours (e.g., Perry et al., 2010), as they suggest that these negative outcomes are not permanent, and that efforts can be made to change future outcomes.

The resulting cognitions and emotions of an attribution in turn elicit a behavioural response. For example, if the teachers from the previous example perceived their student's challenging behaviour as controllable, there is an assignment of responsibility, anger is experienced, and this may reduce the likelihood of teachers helping that student achieve goals in the classroom (e.g., learning to follow rules and listen carefully in class without interrupting). Alternatively, if teachers perceive their student's behaviour as uncontrollable, responsibility is not assigned, they are not angry, they may experience pity towards that student, and this increases the likelihood of helping that student (Weiner, 1985).

In summary, attribution theory holds that each time an event occurs, an attribution is made that can be classified along the three dimensions which then influence the cognitions and emotions that are experienced, and behavioural consequences that result. One major advantage of this theory is that it is highly applicable across a variety of contexts and has been used consistently in educational research (Brady & Woolfson, 2008; Perry et al., 2008; Perry et al., 2010). This theory may be particularly useful in this context considering that teachers may provide a number of different attributions for the challenges experienced by children with FASD (Atkinson et al., 2017; Pei et al., 2015). Thus, this theory provides a strong framework for the present study.

Teachers' attributions. The causal attributions made by teachers for students' behaviours can impact their cognitions, emotions, and behaviour towards students (Georgiou et al., 2002; Reyna & Weiner, 2001; Perry et al., 2010). For example, Reyna and Weiner (2001) examined teachers' hypothetical causal attributions for student failure (e.g., laziness, lack of effort, low ability, transfer student) and the effects of these attributions on their punitive goals. They found that that overall, attributions predicted the punitive practices of teachers.

Specifically, teachers who viewed their student's failure as controllable and stable (e.g., laziness) reacted more punitively towards them, compared to when the student's behaviour was seen as uncontrollable and unstable (e.g., lack of ability), their response was utilitarian (i.e., lacking punishment and more focused on altering the behaviour in the future). These results are consistent with additional research examining the attributions made by teachers for their student failure, in which controllable attributions were associated with anger and a propensity to give up on that student (Georgiou et al., 2002).

Research has also focused on the causal attributions of teachers, specifically for the outcomes of students with disabilities (Brady & Woolfson, 2008; Woodcock & Vialle, 2011; Woodcock & Vialle, 2016). Results of these studies found that pre-service teachers provided more positive feedback, experienced lower levels of frustration, higher levels of sympathy, and had lower expectations of future failure when students with learning disabilities expended high levels of effort (Woodcock & Vialle, 2011). In other words, uncontrollable and unstable attributions made for student behaviour were associated with more positive emotions and behaviours among teachers, which is consistent with the findings for teachers of typical populations of students. Similarly, one study examining the attributions of classroom staff towards students with intellectual disabilities found that controllable and internal attributions for challenging student behaviour were associated with more anger, less sympathy and optimism, and fewer attempts to engage in helping behaviour (Lucas, Collins, & Langdon, 2009). Finally, research has found that internal attributions made by teachers for the struggles of children with disabilities are associated with less modification to instructions and assistance with that individual (Jordan, Glenn, & McGhie-Richmon, 2010), and viewing these students as unable to learn. The results of these studies highlight the applicability of attribution theory for explaining

teachers' experiences with students, particularly for those who are struggling in the classroom. Furthermore, they demonstrate the impact that attributions can have on teachers' cognitions and emotions.

To date, only one study has examined the role of attributions in understanding teachers' experiences working with children with FASD (Atkinson et al., 2017). This study examined pre-service teachers' causal attributions towards students with FASD as predictors of the teachers' sense of self-efficacy, a salient construct in educational literature (Klassen, Tze, Betts, & Gordon, 2011; Tschannen-Moran & Woolfolk Hoy, 2001). The results indicated that attributions made for challenging student behaviour that were described as unstable and controllable by someone external to the child predicted higher levels of teacher self-efficacy, suggesting that attributions along these two dimensions may be adaptive for both teachers and their students. Despite the important contribution of these findings, there were shortcomings that the present study was designed to address. First, Atkinson and colleagues' sample consisted of pre-service teachers, even though it is practicing teachers who are at the forefront of a student's education. It is possible that the responses of pre-service teachers reflected hypothetical beliefs towards working with this population, rather than a reflection on lived experiences. Thus, in this research I focused on practicing teachers. Second, Atkinson and colleagues measured the underlying causal dimensions using a modified version of the Revised Causal Dimension Scale (CDS-II; McAuley, Duncan, & Russell, 1992). However, there are reported difficulties associated with using the CDS-II, including the separation of scales into distinct factors (i.e., causal dimensions) due to inter-correlations among items, and potential ambiguity in the wording of modified items (Atkinson et al., 2017). As an alternative, in this project I created single item direct statements about attributional dimensions with the expectation that they would perform better because they

are less ambiguous. Single items were also used for the remainder of the constructs (i.e., responsibility, anger, and hope) for this reason. Although single items are often frowned upon, there is also evidence that single items may be beneficial for researchers when developing theoretical models (Hayduk & Littvay, 2012), and that they can adequately measure entire constructs. All items were pilot tested with three practicing teachers who provided feedback about the items. All of the teachers reported that the items were unambiguous and that the intent of each item was clear. Finally, although self-efficacy is an important outcome, attribution theory was designed to explain specific cognitions and emotions, none of which were included in Atkinson and colleagues' work. Thus, I designed the current research to address a number of the gaps in previous literature by focusing on the cognition of responsibility, and two discrete emotions of anger and hope in a single model.

Responsibility. Assignment of responsibility in Weiner's model (1985) holds a pivotal role in determining subsequent emotions and behaviours. The cognition of responsibility is particularly important to consider among a population of children with FASD. Due to the complexity of the disorder, there are many individuals and factors that could be viewed as responsible for the student's difficulties. For example, Atkinson and colleagues (2017) identified that pre-service teachers provided a range of responses for why a student with FASD may be struggling in the classroom (e.g., biological, environmental, awareness of proper supports). Although the construct of responsibility was not measured directly, these results suggest that responsibility could be assigned to a number of factors such as: maternal alcohol consumption (the mother), cognitive impairment as a result of alcohol (genetics), poor parenting (parents), the teacher feeling unprepared to work with the student (teacher), or lack of public awareness surrounding the disorder (society). According to Weiner's theory, there is also a possibility that

children themselves could be viewed as responsible for their challenging behaviour in the classroom (e.g., lack of effort).

Whether or not teachers assign responsibility to students for their behaviour has potential implications for the emotions they will feel towards those students, and the subsequent behaviours that are likely to result (Weiner, 1985). For example, Weiner would predict that viewing students as responsible for challenging behaviour will likely elicit feelings of anger (Graham, Weiner, Guiliano, & Williams, 1993; Weiner, 2007), which in turn could reduce the likelihood of teachers helping that student (Weiner, 1985). However, it may also be the case that holding children responsible could be positive, as this may communicate to them that they are accountable for their behaviour in the classroom. Therefore, it is possible that an assignment of responsibility from teachers could be related to feelings of hope, due to holding expectations for their students. Although significant relationships have been demonstrated between teacher responsibility and hope (Eren, 2014), additional research is warranted in regards to whether relationships exist among hope and perceived student responsibility.

There is currently a dearth of research examining the impact of holding students with FASD responsible for their challenging behaviour. Although the nature of FASD complicates the measurement of a construct like responsibility, previous research suggests that measuring teachers' perceptions of student responsibility may aid in the understanding of their experiences in the classroom (Weiner, 1985); more specifically, whether an assignment of responsibility is related to the emotions teachers feel towards these students. However, further research is warranted in regards to the role of responsibility in the development of teachers' emotions, specifically towards this population of students.

Teachers' emotions. Educational research on the emotions of teachers has gained substantial attention in recent years (Frenzel et al., 2016). The emotions teachers experience in the classroom are often correlated with a number of classroom factors such as relationships with students, psychological well-being, instructional effectiveness, willingness to help students, student achievement, and students' own emotions (Becker et al., 2014; Frenzel, 2014; Keller, Frenzel, Goetz, Pekrun, & Hensley, 2014; Pekrun, 2006). These emotions may be particularly important to consider in regards to students who face challenges in the classroom (Hagenauer, Hascher, & Volet, 2015; Sezgin & Erdogan, 2015). Furthermore, the way teachers perceive and explain student misbehaviour (e.g., whether the student had control over that behaviour) is likely to impact the emotions they feel towards that student (Chang, 2009). This is expected based on the attributional model (Weiner, 1985), where explanations (i.e., attributions) for an event in the learning environment play a large role in the development of emotions, including teachers' emotions (Pekrun, 2006).

In the current study, I decided to focus specifically on the discrete emotions of anger and hope. According to Pekrun's (2006) control value theory of achievement emotions, anger and hope are considered opposites: anger is a negative activating emotion, and hope is a positive activating emotion. The positive and negative distinction refers to the notion that anger is an unpleasant emotion, whereas hope is a pleasant emotion. However, anger and hope are similar in that they are both activating emotions (Pekrun, 2006). Activating means that both emotions cause cognitive arousal and are motivating to an individual (Pekrun, Goetz, Titz, & Perry, 2002), albeit in different ways. The negative component of anger increases the likelihood of extrinsic motivation, typically viewed as less adaptive, in order to cope with an event. This often leads to strategies that are more rigid. Alternatively, the positive component of hope is typically

associated with intrinsic motivation, and strategies that are creative, flexible to change, and organized. In the context of the current study, it was important to examine activating emotions, as they are both likely to impact a teacher's behaviour (Frenzel, Goetz, Stephens, & Jacob, 2009). However, the behavioural outcomes associated with each emotion are likely to differ greatly, and each emotion is associated with outcomes that are likely to be important in the context of working with children with FASD.

Anger. Anger, perhaps surprisingly, is a salient emotion experienced by teachers (Frenzel, 2014; Frenzel et al., 2016) and is associated with several maladaptive behaviours and outcomes. For example, significant relationships have been found between anger and lack of discipline, difficulty concentrating, reduced teacher enjoyment, and a reduced likelihood of helping struggling students (Chang, 2013; Hagenauer et al., 2015; Sutton, 2007). This last finding is particularly concerning, considering that struggling students are in need of this additional assistance from their teachers. In addition to a lack of helping behaviour, anger is often related to teaching practices. For example, Frenzel and colleagues (2009) examined the relationship between teachers' emotions and their behaviours in the classroom. Overall, they found that anger was negatively related to several teacher behaviours such as their enthusiasm while teaching, the support they provided students after failure, the extent to which they connected lessons to "real world" content, and the comprehensibility of their lessons, all behaviours that would be described as positive. Additional research has yielded similar findings, in that anger was positively associated with undesirable teaching behaviours (e.g., instructions that were fast paced, and disrespect towards students in the classroom; Frenzel et al., 2016). Anger was also negatively associated with desirable teaching behaviour and the quality of the relationships between students and teachers (e.g., caring for students, supporting them after

experiencing failure). Finally, teachers who experience anger in the classroom are more likely to punish their students instead of help them, retaliate in the face of student misbehaviour, and report higher levels of aggression (Graham & Taylor, 2014). Overall, these findings highlight the maladaptive nature of teachers' anger, and that these behaviours may be particularly problematic if they are directed towards students who are struggling in the classroom, as perhaps are students with FASD.

Among all research on attributions as they to relate to emotions, the strongest relationships have been demonstrated between controllability and anger (Graham & Taylor, 2014; Reyna & Weiner, 2001). The majority of empirical research examining the emotion of anger from the perspective of attribution theory suggests that this emotion is first generated by an assignment of responsibility towards another individual (Weiner, 2007). That is, if the result of a particular outcome is negative, and one feels that an individual had *control* over that outcome, they assign responsibility to that person. The cognition of responsibility then elicits the emotional response of anger (Matteucci & Gosling, 2004). This sequence often demonstrates the belief that one could have done better, but chose not to (Weiner, 2007).

In light of the previous research, the implications for feeling angry towards children with FASD may be particularly maladaptive for both teachers and students. Students with this disorder often experience a number of both academic and behavioural challenges in the classroom (Millar et al., 2014). The potential social and behavioural consequences of FASD (e.g., emotional outbursts, impulsivity, inattention, difficulties with perspective taking leading to misunderstandings) are often especially challenging for teachers to manage in the classroom (Millians, 2015). Unfortunately, anger is often experienced when the goals of teachers are interrupted because of student misbehaviour or from challenges with discipline (Frenzel et al.,

2009; Keller et al., 2014). Considering the frequency of anger experienced by teachers more generally, it is likely that this emotion is experienced equally as often by teachers working with children with FASD. These students require a large amount of flexibility and support from their teachers in order to understand their needs, recognize the function of their behaviour, and guide their learning (Ryan, 2006). If their teachers are angry at them, this may result in rigidity in their teaching strategies, stricter disciplinary practices, lack of helping behaviour, and a reduced quality of relationship with students. This in turn may impede a teacher's capability or willingness to provide the necessary supports for these students.

It is worth noting that, although infrequent, findings have emerged suggesting that the activating component of anger may in some instances be adaptive (Frenzel et al., 2016). For example, Graham (1990) has discussed that anger may communicate to children that their teachers believe in their abilities, expect more from them, and are confident in their abilities (Sutton & Wheatley, 2003). Similarly, Frenzel and colleagues (2016) noted that anger was positively correlated with an awareness of classroom factors, but noted that this may have been due to student perceptions that the teacher was strict and therefore monitoring the classroom. These results suggest that in some instances, anger may not always be maladaptive. That said, the majority of literature would suggest that this frequent emotion is not overall positive for teachers or their students, and that it may be especially maladaptive in the context of working with children with FASD. Furthermore, the specific teacher behaviours associated with anger that may be adaptive are currently unknown.

Hope. Less surprising perhaps, it seems that many teachers also experience hope for their students (Chan, 2009). In research on teachers' hope, significant relationships have been found between this emotion and life satisfaction (Chan, 2009), career gratification (Eren, 2015),

optimism (Bryant & Cvengros, 2004), teacher self-efficacy (Sezgin & Erdogan, 2015), and student success (Hoy, Tarter, & Hoy, 2006), suggesting that this emotion has potential benefits for both teachers and students. In opposition to the implications of anger on teachers' instructional strategies, positive activating emotions such as hope have been associated with more creativity and flexibility in teaching styles (Frenzel et al., 2009). In other words, teachers who feel more hopeful in their classrooms are more open to trying different strategies to meet the needs of their students. Furthermore, hopeful teachers set realistic expectations for their students, and are more likely to break goals down into components that are both manageable and tangible. These realistic and clear expectations are likely to result in greater growth and learning among students (Snyder, Lopez, Shorey, Rand, & Feldman, 2003). Furthermore, hope among pre-service teachers has been shown to correlate with their personal responsibility for: student motivation, achievement, relationships with students, and their own teaching (Eren, 2015). The positive impact of teachers' hope has similarly been demonstrated for students with disabilities (Levi, Einav, Raskind, Ziv, & Margalit, 2013). For example, Levi and colleagues (2013) examined the relationship between hope and teacher self-efficacy, specifically towards students with learning disabilities. Overall, they found that higher levels of hope (measured in terms of expectations for the future) were related to greater self-efficacy among teachers. This indicates that hopeful teachers experienced more confidence in their ability to help students with a disability in their classroom. Taken together, these findings highlight the potential benefits associated with teachers' feelings of hope, and that the implications may be particularly adaptive for students who are experiencing difficulties in the classroom, such as students with FASD.

In Weiner's (1985) model, hopefulness is predicted when one perceives the cause of a negative event to be unstable. As a result, one has an expectancy of future success, and thus feels

hopeful that this success can be achieved in future situations. Therefore, attributions for student behaviour that are seen as unstable are likely to elicit the strongest feelings of hope in comparison to the remaining two causal dimensions (Weiner, 2010). Although the relationship between the cognition of responsibility and the emotion of hope is not directly examined in Weiner's (1985) theoretical model, further research is warranted in terms of whether the cognition of perceived student responsibility is related to hope. Previous research has found relationships between *teacher* responsibility and hope (Eren, 2014, 2015), which suggests that this relationship is worthy of inclusion in the current model based on evidence and theory.

The emotion of hope may be particularly important for teachers when working with challenging populations of students, including children with FASD. If teachers feel hopeful that these students can succeed and feels confident in their ability to help these students, they are more likely to implement strategies to help said students meet their goals (Ryan, Kuusinen, & Bedoya-Skoog, 2015). This may be particularly true considering that each student with FASD may present differently in the classroom (Millians, 2015). If students with FASD are demonstrating challenging behaviour, this feeling of hope is likely to enable teachers to support these students to the best of their abilities, while also improving their overall optimism in the classroom (Bryant & Cvengros, 2004). Furthermore, if hopeful teachers are creative and flexible in their instructional strategies, they may be better equipped to support the variety of challenges that they face from these students by tailoring their practices to meet the needs of each individual child.

Gender differences. It should be noted that previous research has found gender differences between male and female teachers in regards to their emotions in the classroom (Borrachero, Brígido, Mellado, Costillo, & Mellado, 2014). For example, one study found that females used

more emotional strategies in the classroom than males, such as engaging with their students on a personal level, listening to their students speak, and creating a balance of emotion and cognition. Males on the other hand reported less affect with their students, and did not cope as well when their students displayed a lack of effort (Demetriou, Wilson, & Winterbottom, 2009). Taking into account possible gender differences, it was important to include the emotions of anger and hope in the current research based on the previously discussed implications of these discrete emotions for both teachers and their students, particularly when working with challenging populations of students. Furthermore, both are emotions that Weiner (1985) includes directly in the attributional model.

Conceptual Model of Attribution Theory for FASD

FASD can impact all aspects of a child's life, with the school setting as a particularly challenging context for these students (Millar et al., 2014). Considering the increased needs of students with FASD, particularly the extensive support from their teachers, the previously discussed research would suggest that teachers' cognitions and emotions may be particularly important to consider when working with this population of students. According to attribution theory, teachers' explanations for challenging behaviour associated with FASD are likely to impact their emotions towards these children through their cognition of responsibility. However, none of the aforementioned studies have examined teachers' cognitions and emotions towards children with FASD. Given the complexity of this disorder and the increased supports they require in the school setting, the goal of the current study was to fill gaps in the previous literature and examine said constructs for this specific population. Thus, I tested a path model that considered linkages between attributions along the three causal dimensions, responsibility, and teachers' emotions (i.e., anger and hope; see Figure 1).

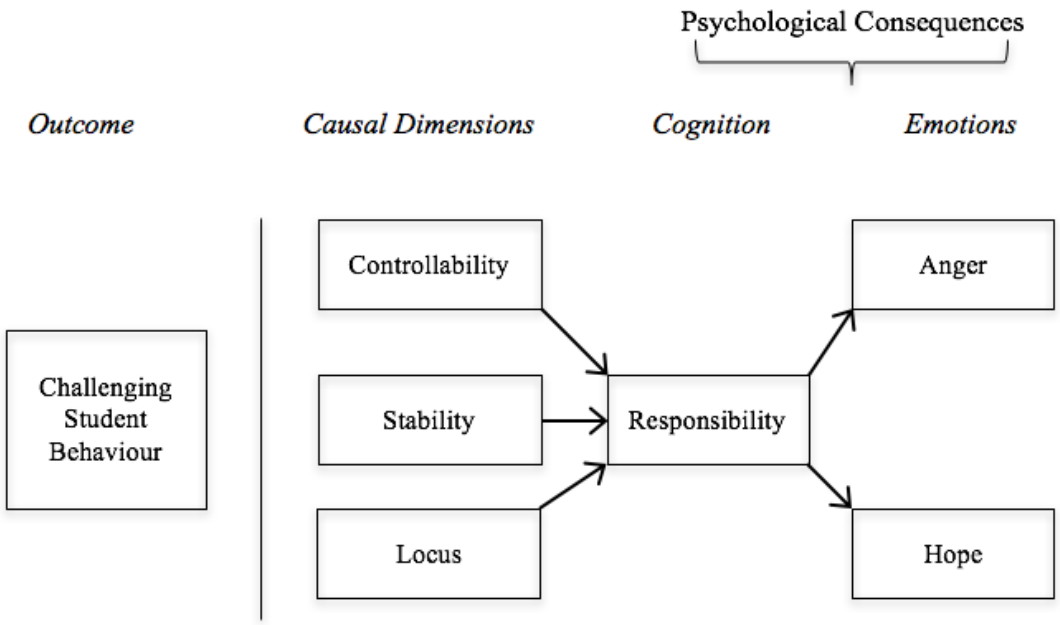

Figure 1. Conceptual model.

In order to guide the current project, I asked one main research question, which involved two sub-questions:

1. Does responsibility mediate the relationships between attributions and teachers' emotions?

1A. Are teachers' attributions for challenging behaviour from students with FASD related to the responsibility they assign to the child?

1B. Does the responsibility a teacher assigns to the student with FASD for their challenging behaviour relate to the feelings of anger and hope?

H1: Overall, I hypothesized that responsibility would mediate the relationship between attributions for challenging student behaviour and teachers' emotions (i.e., anger and hope). This is based on the causal pathways outlined directly in Weiner's (1985) model where causal attributions classified along the three dimensions influence cognitions and emotions. Responsibility has also been found to mediate the relationship between controllability and anger

in previous research (Reyna & Weiner, 2001), so this relationship was hypothesized to be the strongest.

H1A: In terms of the direct effects, I hypothesized that controllability and stability would be positively related to responsibility, and that locus would not be related to responsibility. This was based on Weiner's (1985) inclusion of responsibility as a cognition immediately following from the causal dimensions an individual assigns to a particular outcome, and one that in turn influences emotions. There is the largest amount of evidence for the relationship between controllability and responsibility (Graham & Taylor, 2014; Weiner, 1985; Weiner, 1995). Therefore, I hypothesized that the correlation would be strongest between these two variables. The locus dimension is often more relevant when considering self-directed cognitions and emotions (Weiner, 1985), which is why I hypothesized that this variable would not be correlated with responsibility.

H1B: I further hypothesized that responsibility would be positively related to both anger and hope. For the emotion of anger, this was again predicted directly from Weiner's pathway in which an assignment of responsibility often leads individuals to feel anger towards others (Weiner, 1985). Previous research has not examined the direct link between assigning responsibility and the emotion of hope, so this relationship was exploratory in nature. However, previous research has found relationships between *teacher* responsibility and hope (Eren, 2014; 2015). Thus, I hypothesized perceived student responsibility to function in a similar way.

Method

In this study, I used quantitative methods and employed a cross-sectional survey design. This was done in order to obtain information on the self-reported cognitions and emotions of

practicing teachers regarding teaching children with FASD. Survey design is a common and recommended approach to conducting research of this nature (Creswell, 2015).

Participants

I recruited participants through the Greater Edmonton Teachers Convention Associations' (GETCA) annual convention in February of 2016. All participants are practicing teachers (N = 200, n = 31 male, n = 167 female, n = 2 undisclosed, M_{age} = 36.4) who were attending the conference. This sample size is considered sufficient for conducting correlational research in order to observe trends in the data as well as make preliminary inferences from these trends (Creswell, 2015). It is also considered a sufficient sample size for conducting a path analysis (Kline, 2016). The use of single items also allowed me to obtain a sufficiently large sample size by reducing the time required to complete the questionnaire. Only teachers who were currently practicing were eligible to participate, deeming pre-service or retired teachers ineligible. The average amount of teaching experience among all participants was 10 years, ranging from less than a full year to 43 years. The sampling method was a convenience sample of teachers already attending GETCA, who were willing to participate in the study. No participants were recruited from outside the convention. In 2014, women made up 71% of individuals working in the education services industry in the province of Alberta. Additionally, 75% were between the ages of 25 and 54 (Government of Alberta, 2015). This suggests that the current sample is fairly representative of teachers in Alberta in terms of gender and age.

Procedure

The University of Alberta Research Ethics Board granted the study procedure ethical approval (Pro00061298; Appendix A). When a teacher showed interest in the study, a research assistant (RA) provided them with a clipboard and a copy of the questionnaire (Appendix B),

which included information about the study. Information letters stated that, "By completing and returning the questionnaire, you are consenting to participate in this project" and that anonymity and confidentiality of their responses would be maintained (Appendix C). The information letter also reminded the participants of their right to discontinue at any time. RAs provided participants with their contact information in the event that they had any questions or required further information. As a token of appreciation for participating in the research, they also offered participants light refreshments (e.g. coffee, tea, and candies) at the recruitment booth. The one-time survey took approximately 10 minutes to complete.

Upon completion of data collection, RAs entered the responses from each completed questionnaire into an Excel file. I then examined the file for both entry errors as well as outliers. Once the Excel file was finalized, RAs converted it into a Statistical Program for the Social Sciences Version 24 (SPSS-24) file for analysis. They also password-protected all data files, and placed hard copies of the questionnaire in a locked filing cabinet in the Alberta Consortium for Motivation and Emotion research laboratory at the University of Alberta.

Measures

Demographics. The following demographics were collected for all participants: age, gender, number of years teaching, and teaching level (i.e., whether they taught primary or secondary school; see Table 1). Largely, demographic information was collected to describe the sample; however, gender was also included in the main analyses.

Causal dimensions. In order to assess the attributions made by teachers for their students' behaviour, participants responded to three questions corresponding to each of the three causal dimensions: controllability, stability, and locus of causality (Weiner, 1985). Responses were rated on a nine-point scale from 1 *(not at all)* to 9 *(very much so).* To assess the

controllability dimension, participants indicated their agreement in response to the following question: "To what extent do you feel the student with an FASD can control their problem behaviour?" Thus, lower scores indicated a more uncontrollable (by the student) attribution and higher scores indicated a more controllable (by the student) attribution for this behaviour. To assess the stability dimension, participants indicated their agreement on the same scale with the following question: "To what extent do you the feel student with an FASD can change their problem behaviour?" Thus, lower scores indicated a more stable attribution, and higher scores indicated a more unstable attribution for this behaviour. Finally, to assess the locus of causality dimension, participants indicated their agreement on the same scale with the following question: "To what extent do you feel the student's FASD diagnosis is a part of them?" Lower scores indicated a more external attribution, and higher scores indicated a more internal attribution. Descriptive information for all study variables is presented in Table 1.

Table 1. *Descriptive Statistics of Study Variables*

Variable	# Items	Scales	Range of Responses	*n*	*M*	*SD*	Skew	Kurtosis
Demographics								
Age	1	Self reported number.	21-75	197	36.43	10.86	.47	-.91
Gender	1	1 = male; 2 = female	1-2	198	1.84	.36	-2.02	2.09
Years Teaching	1	Self reported number.	0-43	198	10.50	9.14	.75	-.47
Teaching Level	1	1 = primary, 2 = secondary	1-2	200	1.42	.49	.36	-1.90
Attribution Dimensions								
Controllability	1	1 = not at all; 9 = very much so	1-9	195	4.18	1.81	.22	-.21
Stability	1	1 = not at all; 9 = very much so	1-9	197	5.00	1.93	-.07	-.30
Locus	1	1 = not at all; 9 = very much so	1-9	194	5.54	2.04	-.19	-.54
Responsibility	1	1 = strongly disagree; 9 = strongly agree	1-9	191	4.05	2.12	.17	-.80
Teachers' Emotions								
Anger	1	1 = strongly disagree; 9 = strongly agree	1-8	193	2.60	1.75	.96	-.07
Hope	1	1 = strongly disagree; 9 = strongly agree	1-9	191	6.74	1.86	-.64	-.17

Responsibility. In order to assess responsibility, participants responded to the question: "To what extent do you feel the student with a FASD is responsible for their problem behaviour?" with higher scores assigning more responsibility to the child. Participants indicated their agreement with this item on a scale from 1 *(strongly disagree)* to 9 *(strongly agree)*.

Teachers' emotions. In order to assess teachers' emotions towards students, I again created items specifically for this study. Participants indicated their agreement with each item on a scale from 1 *(strongly disagree)* to 9 *(strongly agree).* To assess the emotion of anger, participants responded to the question: "To what extent do you feel anger towards the child?" with higher scores indicating higher levels of anger. In order to assess the emotion of hope, participants responded to the question: "To what extent do you feel hopeful for the child" with higher scores indicating more hope.

Rationale for Analyses

First, I ran preliminary analyses on the data, which included descriptive statistics (see Table 1), and correlations among all study variables. This allowed me to obtain information about the sample of teachers, observe trends in the data set, and to assess the distribution of variables. Second, I used a path analysis in AMOS 22.0 to answer the main research question. I chose path analysis as the main analysis instead of regression for two reasons. First, the study was designed with Weiner's (1985) path as a theoretical framework. This offered support for the use of path analysis as a comprehensive way to conceptualize the data, as it requires a previous established theoretical model to be in place prior to examining the fit of the model to the data set. Second, path analysis allows the researcher to compute the relationships among all study variables simultaneously. Thus, it was not necessary to carry out separate analyses for different outcome variables, as would have been the case using regression analyses. The fact that both individual relationships among variables as well as the larger theoretical model could be observed made path analysis the optimal method to answer my research questions.

Path analysis is similar to structural equation modeling (SEM), with the exception being the absence of latent variables. Because all variables included in the study were observed rather than latent, SEM was not a viable option. The estimated model in the present study included all possible paths between the variables of interest, deeming it a fully recursive model (Cortina, 2005). This indicates that each variable was estimated onto all subsequent variables (i.e., from attributions to both responsibility and teachers' emotions, and from responsibility to teachers' emotions). I chose to analyze the data in this way in order to examine both the direct and indirect relationships between attributions and the remaining variables. It was additionally informative to examine the direct relationship between attributions and teachers' emotions, as has been

examined in previous literature (e.g., Lucas et al., 2009). The inclusion of all possible paths allowed for a complete understanding of the relationships between all variables. In addition, I included a path from gender to emotions in order to control for this variable.

Kline (2016) recommends that model fit be determined by examining the χ^2, CFI, and RMSEA values of the model. Typically, acceptable model fit is represented by non-significant χ^2 values, CFI values greater than .90, and RMSEA values less than .06 (Hu & Bentler, 1999). For the main analysis, I first examined the fit of the model to the data set. After observing the overall fit of the model, I examined the specific relationships among the variables. This was done in order to answer the main research question as well as the two sub-questions. More specifically, I examined the direct relationships between all study variables (i.e., attributions to responsibility, attributions to teachers' emotions, responsibility to teachers' emotions). Then I considered whether responsibility mediated the relationship between attributions and teachers' emotions.

Results

Preliminary Analyses

I assessed normality by examining histograms for the main study variables and calculating the skewness and kurtosis of each variable (see Table 1). Finney and DiStefano (2013) suggest that potential issues of non-normality (e.g., biased fit indices for the overall model) should not arise with values less than ±3 for skew, and less than ±8 for kurtosis. All study variables fell within the recommended range and thus indicated adequate normality among the data set in order to interpret results of the path analysis. The only exception to this was gender, which was slightly skewed due to the overrepresentation of female participants among the data set. However, this was expected based on the known demographic of individuals in the profession.

Correlations between all study variables are shown in Table 2. Not surprisingly, age had a significant positive correlation with number of years teaching. These variables were both negatively correlated with anger. Gender was not significantly correlated with any other variables in the study, nor was teaching level (i.e., whether the participants taught elementary or secondary school). A significant negative correlation also existed between anger and hope. This relationship provides some evidence of validity of the single items because the items behave as would be expected and have been shown using larger scales. For example, anger scales have been found to negatively correlate with hope scales ($r = -.49$, $p < .01$; Pekrun, Goetz, Frenzel, Barchfeld, & Perry, 2011).

Table 2. *Correlation Matrix of Study Variables*

Variables	1	2	3	4	5	6	7	8	9
1. Age	–								
2. Gender	-.05								
3. Years Teaching	.88**	-.04							
4. Teaching Level	-.07	-1.22	-.09						
5. Controllability	.02	-.023	-.05	.13					
6. Stability	.01	.00	-.03	.01	.61**				
7. Locus	.05	-.03	-.04	-.08	.020	.13			
8. Responsibility	.09	.03	.06	.01	.46**	.41**	.20**		
9. Anger	-.22**	.14	-.22**	.12	.17*	.01	.06	.17*	
10. Hope	-.03	.03	-.03	-.05	.21**	.32**	.07	.18*	-.22**

Note. Relationships involving gender and teaching level show Spearman's rho correlations.

*$p \leq .05$, **$p \leq .01$

Main Analyses: Path Model

Results of the path analysis indicated that the hypothesized model demonstrated near perfect model fit ($\chi^2 = 1.36$, $p = .85$, CFI = 1.00, RMSEA = .000; see Figure 2). The fact that the data fit the hypothesized model suggests that Weiner's (1985) attributional model is one way to explain the cognitions and emotions of practicing teachers when working with this population of students.

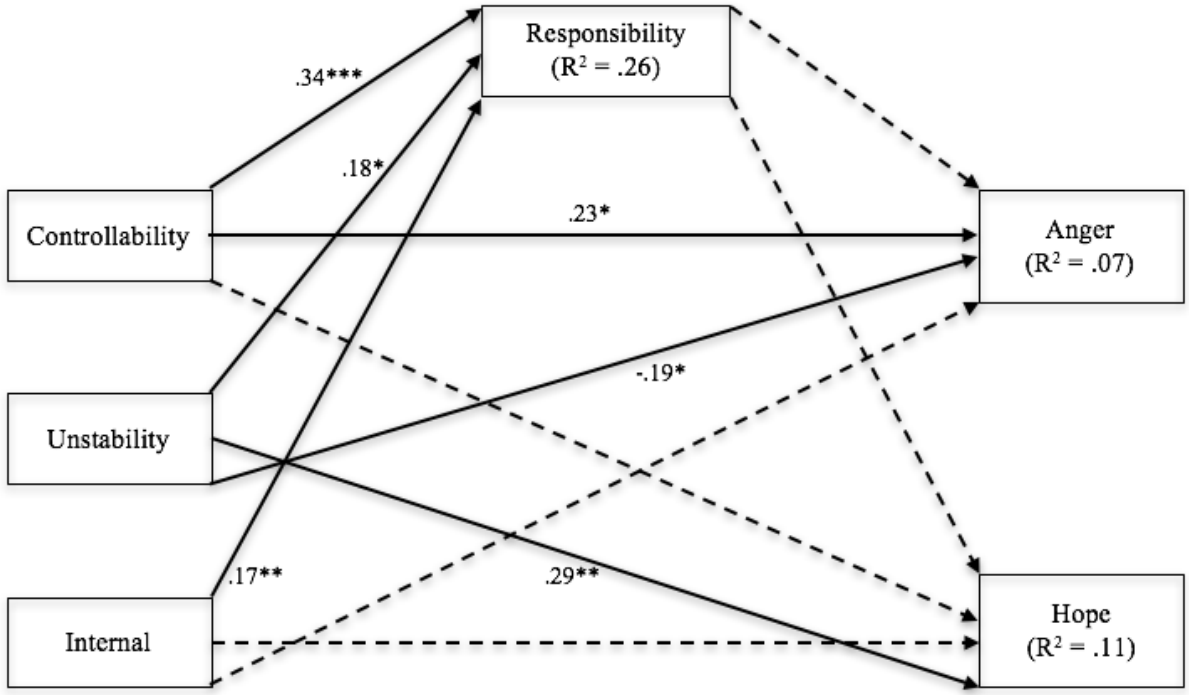

Figure 2. Results of the fully recursive path analysis including the standardized coefficients to indicate the relationships among all study variables. *Note:* Not shown are non-significant paths from gender to teachers' emotions (i.e., anger and hope). Dashed lines represent a non-significant path.

*$p \leq .05$, **$p \leq .01$, ***$p \leq .001$

Direct effects. Standardized path coefficients between all variables in the model are shown in Figure 2. All three causal dimensions were significantly related to responsibility. The

controllability dimension was positively related to responsibility ($\beta = .34$, $p < .001$), which supported the hypothesis regarding these two variables, and this relationship was in fact the strongest. In other words, the more controllable teachers felt their students' challenging behaviour was, the more responsibility they assigned to them. The stability dimension was also positively related to responsibility ($\beta = .18$, $p = .028$), which again supported the hypothesis that stability would have a positive relationship with responsibility. In other words, the more unstable teachers felt their student's behaviour was, the more responsibility they assigned to the student for that behaviour. Finally, the locus of causality dimension was positively related to responsibility ($\beta = .17$, $p = .006$), which was in contrast to what was hypothesized. The more internal (something within the child) teachers felt the students' behaviour was, the more responsibility they assigned to them. Causal attributions made by participants for their students' behaviour explained 26% of the variance in responsibility.

Contrary to my hypotheses, responsibility was not significantly related to either anger ($\beta = .13$, $p = .119$), or hope ($\beta = .03$, $p = .680$). These findings suggest that there was no relationship between the responsibility a teacher assigned to a student for their behaviour and their anger towards that child. Furthermore, there was no significant relationship between the responsibility teachers assigned to students and their hope for that child.

Instead, significant direct relationships were observed between the controllability dimension and anger ($\beta = .23$, $p = .013$), as well as the stability dimension and both anger ($\beta = -.19$, $p = .035$), and hope ($\beta = .29$, $p = .001$). These results suggest that the more controllable teachers felt the behaviour of students with FASD was, the more anger they felt towards them. Furthermore, teachers who viewed the behaviour of students with FASD as capable of changing in the future felt less anger towards these students and more hopeful for them. Although all paths

were included in analysis, these relationships were not predicted in the hypothesized model. No significant relationships emerged between the controllability dimension and hope (β = .03, p = .772), or the locus dimension with either anger (β = .06, p = .423), or hope (β = .03, p = .689). Overall, the model explained 7% of the variance in anger and 11% of the variance in hope.

Indirect effects. Contrary to my hypothesis, there was no significant indirect effect of attributions on teachers' emotions via responsibility, as responsibility was not related to either emotion. These results suggest that among the current sample and with the instruments used to measure these variables, responsibility did not mediate the relationship between attributions and teachers' emotions.

Discussion

The purpose of this study was to examine the relationship between attributions for challenging behaviour from students with FASD and teachers' cognitions and emotions. In this section, I will address four main findings, as well as highlight limitations, directions for future research, and implications for both teachers and students. First, partially consistent with my hypotheses, direct relationships emerged between attributions along all three dimensions and responsibility. Second, direct relationships were also observed between attributions and teachers' emotions. Third, contrary to my hypothesis, responsibility was not related to either emotion experienced by teachers. Finally, also inconsistent with my hypothesis, attributions made for the challenging behaviour of students were not related to teachers' emotions via the responsibility they assigned to that child for their behaviour.

Direct Effects Within the Model

Attributions to responsibility. The attributions that teachers made for their students' behaviour were positively related to the responsibility they assigned to the child, and this was the

case for all three dimensions (i.e., controllability, stability, and locus). As hypothesized, teachers who reported that students were in control of their challenging behaviour also felt that these students were responsible for this behaviour. This relationship is consistent with previous research illustrating significant relationships between these constructs (e.g., Graham & Taylor, 2014; Weiner, 2007). This is understandable as it would be unlikely for a teacher to view a student's misbehavior as under that child's control, yet fail to hold that student responsible for their behaviour. Furthermore, teachers who reported that students were capable of changing their behaviour also assigned responsibility to that child. If teachers view their student's behaviour as capable of changing in the future, they likely view that student as at least partially *responsible* for making those changes in the future. Finally, teachers who felt that a student's diagnosis was internal also assigned responsibility to that child for their behaviour. Although this relationship was not in line with my hypothesis, it suggests that if a teacher believes that their student's FASD diagnosis is a part of them, they may be more likely to believe that the student is responsible for behaviour that results from that disorder. This finding stands in contrast to what would be predicted from the theoretical model (Weiner, 1985; Weiner, 2010). However, it may also be that case that individuals within the sample understood the meaning of "internal" in different ways. While single items were pilot tested, there may have still been ambiguity in the meaning of this item in regards to the diagnosis being a part of the child, thus influencing its relationship with other constructs in the model.

Overall, these results shed light on how a judgment of responsibility may develop for teachers in this context. First, the observed attribution-cognition link is consistent with Weiner's (1985) theoretical framework, especially since the strongest relationship emerged between controllability and responsibility. Although the relationship between locus and responsibility was

not anticipated, it suggests that this dimension may be more important in the context of FASD related behaviours than has been demonstrated in previous attributional research. Furthermore, the results suggest that teachers may be able to influence the responsibility they assign to students in this population based on the attributions they make for students' behaviour.

Attributions to teachers' emotions. Surprisingly, the more controllable teachers felt the student's behaviour was, the more anger they felt towards them. This finding was inconsistent with my hypothesis, as it was predicted that this relationship would be observed via the responsibility teachers assigned for their students' behaviour, rather than directly from the attribution. This suggests that teachers feel anger towards their students with FASD if they think that student is in control of the behaviour, likely due to the feeling that the student should be doing better or that the behaviour was intentional (Weiner, 2007). Although this relationship was not influenced by an assignment of responsibility as would be predicted from Weiner's (1985) theory, it is nonetheless consistent with previous research (Graham & Taylor, 2014; Lucas et al., 2009) where similar direct relationships have been observed. Considering that anger is one of the most prominent emotions experienced by teachers (Frenzel et al., 2014), this research suggests that teachers indeed experience anger towards students with FASD in their classroom. Although the majority of literature suggests that anger is maladaptive in the classroom (Frenzel et al., 2009), it is also an emotion that leads to action (Pekrun et al., 2002). Perhaps this controllable attribution for behaviour that leads to anger is not maladaptive in every context, as it may suggest that teachers hold high expectations for these students, and are angry that they are not meeting these expectations. Although it is outside the scope of the current study, researchers will continue to unveil the implications of anger among teachers working specifically with this population of students in future work. However, based on the breadth of available research

examining this construct, anger is likely to be maladaptive among teachers working with this population as well, as it may elicit rigid teaching strategies and cause them to react punitively towards students.

The direct relationships that emerged between stability and both anger and hope were also surprising. When teachers believed that students could change their behaviour, they felt less anger towards them. These findings, though not anticipated in the current study, are consistent with Weiner's (1985) theoretical model, although the relationship seems to omit the cognition aspect that would be predicted. Furthermore, when teachers felt that students could change their behaviour, the more hope they felt for these students. Again, these results are consistent with previous research which has found relationships among these constructs, and this hope is likely due to an expectancy of success in the future (Weiner, 2010). Finally, although direct relationships were not anticipated between attributions and teachers' emotions, the emotions did act in opposite ways, which is consistent with previous research examining these discrete emotions (Pekrun, 2006).

Overall, these results suggest that certain attributions made by teachers for the challenging behaviour of their students (i.e., controllable, stable or unstable) with FASD are associated with the emotions they feel towards these students. Furthermore, teachers may benefit from attributing challenging behaviour to unstable causes, as they are likely to also feel more hope towards that student. Unfortunately, teachers may lack the knowledge to properly support these students in their classroom (Dybdahl & Ryan, 2009; Pei et al., 2015). Therefore, it is especially important that teachers feel hope towards students with FASD, and it is promising to discern that this hope may be promoted among teachers, partially by believing that the student can behave differently in the future. Unfortunately, the implications of these emotions for children with FASD are

limited in the current study, which is due to the lack of a behavioural measure among teachers. This behavioural outcome may help delineate the specific benefits associated with feeling hopeful towards this population of students. Furthermore, measuring teachers' behaviour as an outcome could also discern whether this specific context is one of the instances where feelings of anger may prove to be helpful for students, rather than maladaptive. If anger in this context is associated with behaviours such as rigid teaching practices, increased punishment, less helping behaviour, and reduced quality of relationships, these behaviours are unlikely to be adaptive for students. However, perhaps anger would be beneficial if the behavioural outcome was communication to the students that they hold higher expectations for them, and thus want them to succeed (Sutton & Wheatley, 2003). Further, perhaps it is a combination of both anger *and* hope that may be adaptive in this context. Future research is warranted in terms of understanding if anger can be adaptive in certain contexts, and the specific behaviours resulting from anger, if any, that may lead to positive outcomes.

Responsibility to teachers' emotions. Contrary to my hypotheses, the responsibility a teacher assigned to a student for their challenging behaviour was not related to their emotions of either anger or hope. This is inconsistent with previous research, particularly in regards to the link between anger and responsibility (Graham & Taylor, 2014; Weiner, 1985). Among this sample, the responsibility a teacher assigns to a student with FASD for their challenging behaviour was not related to the anger they felt towards that student. It is possible that the significant relationships between attributions and emotions prevented relationships from emerging between responsibility and emotions. However, it may also be the case that teachers' attributions made for challenging student behaviour play a greater role in the emotions they feel than the responsibility they assign to the child, and that this relationship does not depend on an

assignment of responsibility. Although it is outside the scope of the current study to make this claim, this poses a potential avenue for future research in this domain. For example, relationships between teachers' attributions and emotions could be examined directly, but exclude the specific cognition of responsibility. If these relationships are stronger than those demonstrated in the current study, this may support the notion that attributions play a greater role in emotion development than responsibility. Furthermore, experimental studies could provide participants with vignettes about challenging student behaviour where one group reads attributions for this behaviour excluding the cognition of responsibility, and an additional group reads attributions and responsibility for student behaviour. Researchers could then observe whether differences exist between the groups in terms of their reported emotions. With respect to anger, perhaps it is really this controllability piece that plays a critical role, more so than whether the student was responsible for their behaviour or not, despite the conceptual similarity between controllability and responsibility (Graham & Taylor, 2014). Although Weiner (1985) would predict the cognition (i.e., responsibility) to relate to emotions, this does not seem to be the case among this sample. Finally, measurement cannot be ruled out as a possible explanation for why responsibility was not related to either emotion. Although it is possible that this construct was not significant in the current sample, it may also be the case that the use of single items prevented this relationship from emerging, due to the item not capturing the construct as would be predicted according to the theory.

Mediation Effect

Overall, the hypothesized recursive model fit the data well. However, there were no significant relationships between attributions and teachers' emotions via the responsibility they assigned to the student for their behaviour. This is inconsistent with my hypothesis that

responsibility would play a role in the relationships between attributions and emotions, as well as with previous literature examining these constructs (Weiner, 1985, 2007). These results suggest that in the current data set, the cognition of responsibility may not play a role in teachers' feelings of either anger or hope, despite being related to the three causal dimensions. It may be the case that the cognitive component of Weiner's (1985) model is not as significant as predicted among this sample. Perhaps when a student with FASD is acting out in the classroom, the explanation (i.e., attribution) the teacher makes for their behaviour has the greatest impact on their resulting cognitions *and* emotions, and the model does not function exactly as predicted in this context. Furthermore, it is possible that although Weiner conceptualizes responsibility as a cognition, it is acting as an emotion in the current model. This may have been due the wording of the item used to measure responsibility, where teachers were asked: "To what extent do you *feel* the student with FASD is responsible for their behaviour?" It is possible that teachers were primed to *feel* responsibility, causing it to act more similar to an emotion than a cognition in this context. Therefore, it may also be the case that the item used to assess teachers' cognition of responsibility was not sensitive to measuring this construct. Again, potential measurement error cannot be ruled out as a possible explanation for why responsibility did not function as predicted.

Limitations & Directions for Future Research

The results of the current research need to be considered in light of the following four limitations. First, the participants included in this study are a convenience sample of teachers from one Western Canadian city in attendance of the same convention. Although it was identified that the sample shared characteristics with the overall population of teachers in Alberta in terms of age and gender, the generalizability of the findings may still be limited to one geographical area. For example, teachers' experience working with children with FASD may

differ in countries where the disorder is not as heavily researched as is the case in Canada. Furthermore, there is always a risk that participants will respond in a socially desirable manner when conducting research of this nature. However, this is unavoidable due to the sensitive nature of the topic. In order to remedy these limitations, researchers could aim to replicate the findings of the current study among different populations of teachers, both nationally and internationally. Furthermore, teachers' emotions could be assessed using alternate methods (e.g., having teachers keep diaries of their emotions in certain situations, conducting classroom observations, anchoring vignettes; Keller et al., 2014; King & Wand, 2007; Sutton, 2007) in order to reduce the likelihood of social desirability.

Second, single items were used to represent the entirety of variables included in the model, rather than using multiple items for each construct. It is possible that the items did not adequately measure the constructs and we were unable to examine the coefficient alpha to determine reliability. Although I am confident that participants would provide consistent responses across multiple items or time points, it was impossible to determine this statistically. As a result, this may have prevented significant relationships that were hypothesized to exist from emerging in the current data set. In light of this limitation, researchers in the future could examine the factor structure of different models using both stand-alone items and latent variables in order to determine the optimal method of measuring each construct. In terms of emotions, the Teacher Emotions Scale (TES; Frenzel et al., 2016) is an established scale designed to measure teachers' anger, enjoyment, and anxiety in the classroom context. Reliability and both internal and external validity of this measure has been demonstrated (Frenzel et al., 2016) among international samples of teachers. This suggests that the TES may prove useful in examining teachers' emotions towards students with FASD in this context. Furthermore, although established

measures exist for measuring causal attributions (e.g., CDS-II; McAuley et al., 1992), additional research would aid in the development and validation of a measure of teachers' attributions specifically for student misbehaviour.

Third, the model switches from other-directed attributions and cognitions (i.e., attributions for challenging student behaviour, assignment of responsibility to the child) to self-directed emotions (i.e., the teachers' own feelings of anger and hope). The variables were measured this way in order to obtain the most accurate representation of teachers' experience in the classroom as they relate specifically to their students with FASD. Furthermore, the variables aligned most closely with the constructs in the theoretical framework used, which was important for the analyses that were run. However, it is possible that this may have caused confusion among teachers when reflecting on these experiences. As a result, this may offer an additional explanation as to why mediation was not observed among study variables. Researchers in this domain could consider examining whether this model switching in fact has an impact on the relationships among variables in future work. If this is the case, they could aim to develop alternative models in line with the theory that capture teachers' experiences that are completely self-directed, or completely other-directed.

Finally, individual differences of teachers such as teaching level, years of experience, and classroom size and composition were not taken into consideration in this model. It is possible that teachers may not make the same attributions, nor feel the same emotions towards all students with FASD who are struggling in their classroom. Therefore, researchers may benefit from measuring attributions for challenging behaviour as a within-teacher variable in the future, rather than a between-teacher variable (Jager & Denessen, 2015). There may be intra-individual differences not accounted for in the current study that could provide further insight into the broad

experiences of one given teacher. Similarly, teachers' cognitions and emotions could be examined towards the same student on a day-to-day basis for a given period of time, to determine whether differences exist and to examine contextual factors on a given day that may explain these differences. Recent research has examined intra-individual emotions of teachers in the education context (Becker, Keller, Goetz, Frenzel & Taxer, 2015), which presents a promising avenue for measuring emotions in future research of this nature.

Implications

The results of the current study have implications for both educational researchers and teachers working with children with FASD. Overall, the results of this study offer support for the use of Weiner's (1985) attribution theory when examining practicing teachers' cognitions and emotions related to students with FASD, a previously unexplored domain using this theory. It is likely that other prominent theories utilized in educational research would offer valuable perspectives in this domain as well. For example, Pekrun's (2006) control value theory of achievement emotions could serve as a theoretical framework in future research examining teacher's emotions towards students with FASD. However, the results of the current study suggest that Weiner's (1985) theoretical model remains strong in a new context. This adds further strength to its applicability in the education context. Although the current study did not include a behavioural outcome, the successful model suggests that the theoretical framework would continue to yield significant results should a behavioural outcome (e.g., teacher instructional strategies, helping behaviours) be included.

The results have additional implications for researchers in the field in terms of the methodology used to carry out the research. Overall, the findings provide support for the sampling method and data analysis employed in the current study. Although researchers in the

field have suggested that self-report measures may not capture the entirety of a teacher's emotional experience (Keller et al., 2014), the data collected provided valuable insight into teachers' experience working with this population of students. Furthermore, using this method enabled me to obtain a large enough sample to run the desired analysis that was deemed most appropriate in this context. Therefore, there are still places in educational research where self-report data may be the optimal method of data collection. In terms of the specific constructs measured, the results also suggest that researchers may wish to adapt the cognitive component of Weiner's (1985) model, particularly when it is conceptualized as a mediator between causal dimensions and emotions. Although Weiner posits that a separate measurement of cognition followed by attributions is necessary in the development of emotions, the current results suggest otherwise. This is likely due to the fact that attributions *are* cognitions that individuals experience in response to specific events. Therefore, it is possible that teachers' attributions for challenging student behaviour may not need to be conceptualized separately from other cognitions such as responsibility. This notion has already been suggested in previous literature. For example, in Pekrun's (2006) control value theory, the cognitions of control and value give rise to specific emotions, and responsibility is not included as an explicit cognition. In light of the results of the current study, this is consistent with the direct relationships observed between attributions and emotions, particularly in regards to controllability. Overall, additional research is necessary to determine the role that cognitions play in the development of teachers' emotions, and the way cognitions are conceptualized in this context. This research is specifically warranted in the context of challenging student behaviour from children with FASD. However, these results must be interpreted with caution as the lack of significance may have also been due to the way in which the construct of responsibility was measured.

The findings of the current study have additional implications for teachers working with children with FASD in their classrooms. Overall, the results suggest that the attributions teachers make for their students' challenging behaviour are related to both the responsibility they assign to the child, and the emotions they feel towards that child. These results are important, as teachers may be able change the attributions they make for students' challenging behaviour through interventions. More specifically, teachers could be trained to make uncontrollable and unstable attributions for this behaviour, which may reduce the amount of anger they feel towards students, and increase the amount of hope they feel towards them. One way in which adaptive attributions could be fostered are through mindset interventions (Dweck, 2006; 2007). In these interventions, *growth* mindsets (i.e., making unstable attributions, viewing abilities as entities that can be improved) have been promoted (Blackwell, Trzesniewski & Dweck, 2007; Yeager et al., 2016), and may be particularly successful in this context. By making more adaptive attributions (i.e., by changing mindsets from *fixed* to *growth*), teachers may be able to influence their emotions in the classroom. Attributional Retraining is a similar intervention in which individuals are trained to make adaptive attributions, and has been widely successful in a number of contexts, particularly education (Hamm, Perry, Clifton, Chipperfield, & Boese, 2014; Haynes Stewart et al., 2011). These interventions stand to improve the emotional experience of teachers in the classroom when encountered with challenging behaviour as a result of FASD. By making more adaptive attributions for student behaviour, these teachers may feel less angry and more hopeful in the classroom, and as a result feel enabled for success in supporting these students. Not only could this improve their own experience in the classroom, but has the potential to benefit the struggling students as well.

Additionally, interventions with personnel outside the home can have a positive impact on outcomes for individuals with FASD (Reid et al., 2015). Given the prevalence of children affected by FASD in the education system, interventions designed for teachers are particularly important. Therefore, understanding the role of teachers' cognitions and emotions, when working with this population of students is an important first step in developing interventions for teachers in the school setting. Researchers in one study examined the effectiveness of a professional development program among elementary school teachers and students with FASD (Clark et al., 2014). Teachers who were part of the intervention group reported a significant increase in students' adaptive skills, and a significant decrease in students' school problems after the intervention. Although the results of this study are promising, the sample size was small (N=12), which limits the generalizability of the findings. Therefore, further research is warranted in regards to understanding the experiences of teachers when working with students who have a FASD. Understanding the thoughts and emotions of teachers when working with this population is likely a critical first step in order to inform the development of future interventions. This project is an informative first step that may ultimately improve the experience of educators supporting these students, and potentially the lives of children with FASD as well.

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Appendix A

Statement of Ethics Approval

Notification of Approval

Date: January 18, 2016

Study ID: Pro00061298

Principal Investigator: Jona Frohlich

Study Supervisor: Lia Daniels

Study Title: Teacher's Causal Attributions for FASD as Predictors of Self-Efficacy and Inclusion

Approval Expiry Date: Tuesday, January 17, 2017

Date Approved Document 1/18/2016

Sponsor/Funding Agency: SSHRC - Social Sciences and Humanities Research Council SSHRC

Thank you for submitting the above study to the Research Ethics Board 2. Your application has been reviewed and approved on behalf of the committee. A renewal report must be submitted next year prior to the expiry of this approval if your study still requires ethics approval.

If you do not renew on or before the renewal expiry date, you will have to re-submit an ethics application. Approval by the Research Ethics Board does not encompass authorization to access the staff, students, facilities or resources of local institutions for the purposes of the research.

Sincerely,

Stanley Varnhagen, PhD

Chair, Research Ethics Board 2

Note: This correspondence includes an electronic signature (validation and approval via an online system).

Appendix B

Study Questionnaire Items

Please indicate the extent to which you agree with the following statements. There are no right or wrong answers and we are just interested in your own opinion and perspective.

1 = Strongly Disagree, 5 = Neutral, 9 = Strongly Agree

To what extent do you feel the student with an FASD can control their problem behaviour?	1 2 3 4 5 6 7 8 9
To what extent do you the feel student with an FASD can change their problem behaviour?	1 2 3 4 5 6 7 8 9
To what extent do you feel the student's FASD diagnosis is a part of them?	1 2 3 4 5 6 7 8 9
To what extent do you feel the student with a FASD is responsible for their problem behaviour?	1 2 3 4 5 6 7 8 9
To what extent do you feel anger towards the child?	1 2 3 4 5 6 7 8 9
To what extent do you feel hopeful for the child?	1 2 3 4 5 6 7 8 9

Please tell us a bit about yourself:

Is your sex: Male____ OR Female____

How old are you? ____

How long have you been teaching? ____

*Teachers were given different coloured questionnaires based on whether they taught Elementary or High School.

Appendix C

Information Letter

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Information Letter on Research at GETCA 2016

Principal Investigator: Dr. Lia Daniels, lia1@ualberta.ca, 780-492-4761
Research Coordinator: Jona Frohlich, frohlich@ualberta.ca

Background, questions, & purposes: Practicing teachers are of utmost importance in the study of education as they are the ones working with students on a daily basis. We are interested in your perspectives in the areas of FASD and efficacy. Our specific questions are: What is the relationship between attributions, self-efficacy, and inclusion beliefs when teaching children with FASD? Does self-efficacy differ based on the difficulty of the class? This data is being collected for scholarly purposes including conference presentations, publications, and a master's thesis.

Procedure: While at GETCA, you will complete a questionnaire based on your experience thus far in your teaching career. The questionnaire should not take longer than 15 minutes. Questions are designed to assess levels of self-efficacy (i.e., feeling capable), your experiences teaching children with a Fetal Alcohol Spectrum Disorder (FASD), and your thoughts and emotions in those situations.

Confidentiality & Anonymity: Participation is voluntary and your responses are anonymous. Your name will not appear anywhere on the questionnaire and all dissemination of this data will happen in terms of mean scores. The data will be stored on password-protected computers at the University of Alberta. All research assistants have signed confidentiality agreements. Your consent is implied by completion of the questionnaire.

Withdrawal: You can stop answering at any time. However, once you submit the questionnaire there will be no way to identify your responses if you wanted them excluded.

What are the benefits/risks: There are no risks associated with this research and you may benefit by having an opportunity to reflect on these professional topics. You will also be contributing to ongoing research in the Alberta Consortium for Motivation Emotions (ACME) and helping a student complete her master's thesis.

To see a Research Brief on our results visit: https://sites.google.com/a/ualberta.ca/acme/
The plan for this study has been reviewed for its adherence to ethical guidelines and approved by the University of Alberta Research Ethics Board (REB2 - Pro00061298). For questions regarding participant rights and ethical conduct of research, contact the Research Ethics Office at 780-492-2615.