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An Autonomy Support Motivation Intervention with Pre-Service Teachers: Do the Strategies that They Intend to Use Change?

by

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Dedication

This thesis is dedicated to my father because he gave me the opportunities that he never had and allowed me to pursue whatever it was that I wanted to pursue in life. Dad supported me, thought I could do whatever I wanted to and always believed in me.

Abstract

Self-Determination Theory posits that autonomy is one of three psychological needs whose fulfillment leads to an optimally motivating learning environment. A quasi-experimental design was used to see if the motivational strategies that preservice teachers intended to use in their classrooms changed after they were presented with an evidence-based autonomy-support motivation intervention. A mixed randomized-repeated measures ANOVA revealed that the strategies change significantly in comparison to a control group, with both a main effect of time (F (1,60) = 13.84, $p > .001$) and a significant interaction effect (F (1,60) = 8.07, $p = .01$). Analysis revealed that preservice teachers in both groups endorsed autonomy-supportive motivational strategies at similar levels before the intervention; those who took part in the intervention endorsed significantly more autonomy-supportive strategies after the intervention than the control group. The effects of novelty and usefulness of content were explored. Implications, suggestions for further research and future applications are discussed.

Acknowledgment

This dissertation would not have been possible without the guidance and the help of several individuals who in one way or another contributed and extended their valuable assistance in the preparation and completion of this study.

First, I would like to thank Dr. Lia Daniels for her guidance and enthusiasm as we have worked on this research together. She provided support and direction without stifling my thoughts and it has been a true pleasure to work with her. I appreciate the opportunity to develop my own ideas and inform the research process.

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An Autonomy Support Motivation Intervention with Pre-Service Teachers: Do the Strategies that They Intend to Use Change?

Historically, a vast amount of research has been conducted with student and teacher populations around the idea of intrinsic motivation (Niemiec & Ryan, 2009). However, little research focuses on the specific strategies that teachers use to motivate their students. There is a gap in the literature around how teachers choose the motivational strategies that they do and questions to answer about how teachers can best motivate their students to learn. A recent study by Lauermann & Karabenick (2011) showed that often teachers choose practices to motivate their students that actually do not work for the majority of students. In fact, some of the practices that teachers endorse, such as providing rewards and posting relative performance information, can actually undermine the motivation that students may naturally feel towards their learning environments. The research completed in this thesis attempts to address this disconnect between research and practise and to provide pre-service teachers with feasible, practical and evidence-based strategies that have been shown to motivate students.

This research uses a Self-Determination Theory (Ryan & Deci, 2000a) framework to examine if presenting preservice teachers with information about empirically validated motivational strategies changes the motivational strategies they intend to use with their future students. Specifically, the main research question is: Do pre-service teachers' intended motivational strategies change after receiving information about how to create a more autonomy-supportive learning environment? In examining this question I used a quasi-experimental pre- and

post-test design (Creswell, 2009) in which students were presented with a questionnaire, attended the motivation intervention presentation with an applied practise component and then completed the same questionnaire again. The data for the main research question were analyzed using a mixed randomized-repeated measures ANOVA to test the effect of the autonomy-support motivation intervention on changing the motivational strategies that pre-service teachers intend to put into place in their classrooms after attending the intervention presentation. Within this design, the independent variables are defined as the motivation intervention presentation, the novelty of the information provided and usefulness of the information presented, while the dependent variable is defined as autonomy-supportive motivational strategies (pre and post-survey). I hypothesized that pre-service teachers who participated in the autonomy support motivation intervention would endorse more autonomy supportive motivational strategies on the post-survey than would their control group counterparts.

Two secondary research questions were whether the novelty of the information presented impacted the autonomy supportive motivational strategies endorsed on both the pre and post-survey and whether the usefulness of the information presented impacted the autonomy supportive motivational strategies endorsed after the intervention. I additionally hypothesized that participants who had not been exposed to this information before would demonstrate a greater shift towards more autonomy supportive motivational strategies on the post-survey than those who were already familiar with the material and that participants who found the information useful would endorse more adaptive motivational strategies

on the post-survey than those who did not. These questions were analyzed using a mixed randomized-repeated measures ANOVA and a regression analysis.

It is hoped that this research demonstrates the importance of translating knowledge from the research literature into practical, feasible strategies that pre-service teachers can use and implement in their classrooms. It is further hoped that the results of this research will help teachers create optimal learning environments for the majority of students by providing evidence-based strategies that help to catalyze and inspire both a desire towards and an enjoyment of lifelong learning.

Literature Review

The following literature review explains Self-Determination Theory (Ryan & Deci, 2000a) and examines the concept of motivation in order to arrive at a coherent definition of autonomous motivation. Following this, the review provides examples of how learning environments can be supportive of the psychological needs proposed by the theory, focusing primarily on the need for autonomy. The motivation strategies that teachers currently use are then examined to provide a rationale for why a motivation research based intervention is timely. Fourthly, the development and delivery of the motivation intervention will be described. Finally, this review will provide a research question and hypotheses for the research that was conducted based on the information presented herein.

Self Determination Theory

Proposed by Richard Ryan and Edward Deci in a seminal article (2000a), Self Determination Theory (SDT) is a metatheory that is composed of four subtheories. Overall, the theory is concerned with exploring individuals' natural growth inclinations and the psychological needs that are the foundation for their motivation and personality integration. The theory also looks to explore the situations and environments that can cultivate those positive processes (growth, motivation and integration of the self). Of particular interest to this research are the Organismic Integration Subtheory and the Cognitive Evaluative Subtheory, both of which deal with striving to achieve optimal functioning, in this case, academically (Ryan & Deci, 2000b).

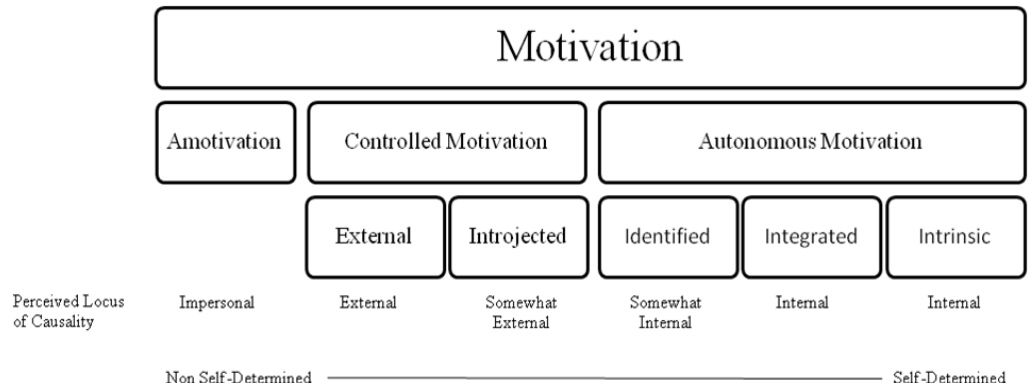


Figure 1. The self-determination continuum showing types of motivation with their loci of causality (adapted from Deci & Ryan, 2008a).

Organismic integration theory. Motivation, in a general sense, is defined as being moved to do something (Ryan & Deci, 2000b). SDT, through its Organismic Integration Subtheory, theorizes that motivation varies in both amount and type, which leads to a continuum of kinds of motivation (see Figure 1). Broadly, these types can be separated into extrinsic or controlled motivation and autonomous motivation (Deci & Ryan, 2008b; Vansteenkiste et al., 2006).

***External motivation*.** Controlled motivation, at its most extreme form known as external motivation, is typically experienced when individuals feel pressured to act, feel, behave or think in specific ways (Ryan & Deci, 2000b). In the educational context, it is important to be aware of this because more controlled forms of motivation are associated with undermining individuals' intrinsic valuing of certain activities (Deci & Ryan, 2008b), more resentment, resistance and disinterest in the task at hand (Ryan & Deci, 2000b) and poor maintenance of the behaviour after the immediacy of it (Vansteenkiste et al., in press cited in Niemiec & Ryan, 2009). When students are externally motivated

for a task, their persistence and perseverance may be less and they most likely will not enjoy or value that task or skill.

However, it is also important to note that certain forms of controlled motivation can become autonomous, either through identification with the values and ideas explained or through integration of these values and their importance within the self (Niemiec & Ryan, 2009; Ryan & Deci, 2000b). These forms of more internalized controlled motivation (labeled introjected and identified in Figure 1) have more of an internal locus of causality and are experienced as inherent to the self, thereby allowing them to be experienced as more self-determined and autonomous, despite originating from external sources.

Autonomous motivation. Autonomous motivation can be broadly defined as experiencing volition and choice in one's environment (Vansteenkiste et al., 2006). Broken down along the motivation continuum (see Figure 1), autonomous motivation comprises identified, integrated and intrinsic motivation. According to Ryan & Deci (2000a), intrinsic motivation is "[the] natural inclination toward assimilation, mastery, spontaneous interest and exploration that is so essential to cognitive and social development and that represents a principal source of enjoyment and vitality throughout life" (p. 70). Across the literature, this definition is consistent, with a few small variations. For comparison, Vallerand (1997) notes that when an individual participates in an activity for intrinsic reasons, they "engage in the activity in order to experience the satisfaction and pleasure inherent in the activity itself" (cited in Amorose & Horn, 2001, p. 356). Individuals who are intrinsically motivated therefore take part in activities

because they are interesting and satisfying in and of themselves (Deci & Ryan, 2008a). These activities are undertaken because of the positive feelings that result from the activities themselves.

That said, in practicality, it is very difficult to differentiate between intrinsic and integrated forms of motivation. Integrated motivation is defined as motivation where behaviours that are considered valuable and important are synthesized with other aspects of the self (Niemiec & Ryan, 2009). As Deci and Ryan (2008a) state: "integrated [motivation] bears similarity to intrinsic motivation, for both are accompanied by a sense of volition and choice" (p. 16). Given that integrated motivation is also self-determined and that these two types of motivation are often together referred to as "autonomous motivation" in the research literature (Ryan & Deci, 2000b), this research treats them as such, while still acknowledging that the main difference lies in the fact that intrinsically motivated behaviours are pursued for their inherent enjoyment. Autonomous motivation is then perceived as emanating from within the self and activities that are autonomously motivated are more enjoyable and more pleasurable. This type of motivation is therefore associated with an internal locus of perceived causality and consequently, more interest, enjoyment and satisfaction with one's activities (Ryan & Deci, 2000a). It seems fairly obvious that these are the goals that many teachers have for their students, namely to be interested in, to enjoy and to feel satisfied with the learning that they do in the classroom. It follows then that examining autonomous motivation and ways to increase this particular construct in the classroom is both timely and appropriate.

In the educational context, looking at the differences between catalyzing intrinsic motivation and inspiring integrated motivation is not practical as both accomplish the same end result (getting students more involved and interested in learning) and, in reality, will not add useful or meaningful information to the existing literature, given the similarities between the two concepts. Additionally, both intrinsic and integrated motivations are associated with greater psychological health and well-being, more effective performance and greater long term persistence (Deci & Ryan, 2008b). Given the similarities between the concepts, their common results and parallel long-term benefits, intrinsic motivation and integrated motivation will be treated as the same construct (autonomous motivation) for the purposes of this research.

Under this umbrella, students who are more autonomously motivated tend to perform better academically (Guay & Vallerand, 1997) and are less likely to drop out of school (Vallerand, Fortier & Guay, 1997). Additionally, Vansteenkiste and colleagues (2004) have found that being autonomously motivated can lead to deeper understanding of material. Moreover, students who are more autonomously motivated may be more creative as "external contingencies present in the school setting may undermine student creativity" (Guay, Ratelle & Chanal, 2008). Finally, the findings that students who are autonomously motivated are happier at school, are more satisfied with their school experiences and enjoy academic work and learning more than their peers who are more extrinsically motivated has stood the test of time. For example, Vallerand and colleagues (1989) found evidence that supports these statements in

the late 1980s while Levesque, Zuehlke, Stanek and Ryan found much the same results in 2004. Students who are autonomously motivated towards school are generally going to be more successful in their academic pursuits. Consequently, given the benefits stated above, it becomes crucial to examine ways to facilitate autonomous motivation. Moreover, "students' natural tendencies to learn represent perhaps the greatest resource educators can tap" (Niemiec & Ryan, 2009, p. 134).

Cognitive evaluative theory. This Self Determination Theory subtheory posits that there are three separate and individual psychological needs that individuals strive to fulfill in order to feel autonomously motivated: the needs for autonomy, competence and relatedness (Ryan & Deci, 2000a). Autonomy is defined as experiencing behaviours as volitional and freely chosen, with the self at the origin of the behaviour (Nimiec & Ryan, 2009; Oliver, Markland, Hardy & Petherick, 2008; Deci & Ryan, 2008; Faye & Sharpe 2008). The need for competence is defined as "the experience of behaviour as effectively enacted" (Niemiec & Ryan, 2009, p. 135). In other words, in order for individuals to feel competent, an activity should be optimally challenging (neither too difficult nor too easy) and allow them to feel effective in their environments (Faye & Sharpe, 2008). The psychological need for relatedness, posited by SDT, is defined as the experience of feeling close and connected to others, while also having supportive and satisfying close relationships (Oliver et al., 2008; Reis, Sheldon, Gable, Roscoe & Ryan, 2000). Thus, if what we want are autonomously motivated students, we need to help students feel autonomous, competent, and connected.

Deci and Ryan (1994) note that environmental factors can help people satisfy their psychological needs and thus are linked to more self-determined behaviour, growth, and autonomous forms of motivation, which has already been identified as the ideal outcome. My research is focused on one of the factors that facilitates autonomous motivation: an autonomy-supportive environment.

Autonomy. Considered by many researchers in the field to be among the most important of the psychological needs, fulfilling the need for autonomy is necessary for behaviours to be experienced as self-determined and autonomously motivated (Ryan & Deci, 2000a). "Autonomy support refers to the readiness of an individual in a position of authority to take the other's perspective, provide appropriate and meaningful information, offering opportunities for choice, while at the same time minimizing external pressures and demands" (Black & Deci, 2000, cited in Reinboth et al. 2004, p. 298). An autonomy-supportive environment is an important component of facilitating autonomous motivation yet it seems to be consistently overlooked by people in positions of authority who have the ability to implement strategies that facilitate this.

Autonomy support has been examined and researched in a variety of different contexts. In the workplace, a more autonomy-supportive environment has been found to be associated with healthier achievement beliefs (Kenny, Walsh-Blair, Blustein, Bempechat & Seltze, 2010), lower turnover and more optimal functioning (Van den Broeck, Vansteenkiste, De Witte, Soenens & Lens, 2010). In addition, implementing more autonomy-supportive strategies in the workplace has been associated with better job performance and lower levels of

both anxiety and depression (Baard, Deci & Ryan, 2004). Further to this, Stone, Deci & Ryan (2008) suggest that there are six strategies that workplace managers can use to be more autonomy-supportive; however, managers will often need to "unlearn" their existing motivational strategies in order to have this be truly autonomy-supportive.

In the health care context, autonomy support has been researched in a number of areas. Generally, an autonomy-supportive approach to patient care has been found to be associated with better mental health, increased quality of life, better control of diabetes and better health-related outcomes (Ryan, Patrick, Deci & Williams, 2008). Specifically, a SDT intervention that focused on autonomy-support and perceived competence was found to make it easier to stop smoking (Williams, Niemiec, Patrick, Ryan & Deci, 2009). Autonomy-support, when combined with a methadone treatment program for drug users, was linked to better treatment outcomes and lower relapse rates (Zeldman, Ryan & Fiscella, 2004). In addition, the provision of choice in the way that patients were introduced to an eating disorder program was associated with a lower dropout rate from the program (Vandereycken & Vansteenkiste, 2009). Finally, in therapy it has been stated that autonomy should generally be fostered (Ryan, Lynch, Vansteenkiste & Deci, 2011). Specifically, autonomy-support in a cognitive therapy group led to positive therapy outcomes by facilitating cognitive change (Dwyer, Hornsey, Smith, Oei & Dingle, 2011). In health care in a broad sense, autonomy support has been found to be helpful in a variety of areas as it provides patients with a sense of being in control of their own health and treatment.

In athletics, extensive research has been completed on autonomy-support. Associated with more autonomous motivation in youth gymnasts (Gagne, Ryan & Bargman, 2003) and with higher self-esteem and well-being in youth swimmers (Coatsworth & Conroy, 2009), autonomy-support is particularly salient because it represents a change in how youth sport could be coached and administered in the future. In this context, autonomy-support has also been found to increase persistence and performance. Coaches can (and do) adopt more autonomy supportive coaching styles; this has been studied comprehensively (e.g. Gagne, Ryan & Bargman, 2003; Coatsworth & Conroy, 2009; Almagro, Saenz-Lopez & Morena, 2010; Banack, Sabiston & Bloom, 2011). Among the coaching behaviours identified as autonomy-supportive are providing choice to athletes, providing rationales for behaviours and acknowledging athletes' feelings and perspectives (Mageau & Vallerand, 2003). Athletics, particularly youth athletics, provide perhaps the most analogous situations to those in which teachers may find themselves.

***Autonomy in the classroom*.** SDT is primarily concerned with allowing people to express their inherent tendencies towards growth. It provides a very useful and practical framework for understanding how social context, environmental variables, and specific behaviours can influence individuals' long-term attitudes and motivation towards learning. In short, as Ryan and Deci state in their seminal 2000 article, "[autonomous motivation] will flourish if circumstances permit" (p. 70). And the literature thoroughly documents the

"circumstances" that do indeed contribute to an autonomy-supportive learning environment and thus autonomous motivation (Niemiec & Ryan, 2009).

An autonomy-supportive learning environment is defined as one that allows individuals to feel that they are the deciders of their actions, that they have some agency in shaping their environment and that they perceive a degree of control over their environment. The following list contains many characteristics of this type of environment:

- opportunity for choice (Ryan & Deci, 2000b);
- opportunity for self-direction;
- acknowledging feelings (Deci & Ryan, 1994);
- minimal external rewards and punishments (Oliver et al., 2008);
- shared decision making;
- sharing a meaningful rationale for engaging in a behaviour or assignment (Oliver et al, 2008; Niemiec & Ryan, 2009); and
- providing a voice for students in their academic activities (Niemiec & Ryan, 2009).

These are all qualities that educators can strive to incorporate into their classrooms and have their students see and feel in the classroom (Deci & Ryan, 1985 cited in Faye & Sharpe, 2008). As was the case for workers, patients, and athletes, perceptions of an autonomy-supportive environment are associated with positive outcomes for students including the ability to learn more effectively (Amabile, 1996 cited in Ryan & Deci, 2008a), enhanced performance and persistence (Oliver et al., 2008) and feelings of curiosity and interest (Niemiec &

Ryan, 2008). However, it is important to note that these outcomes depend on students being aware of the fact that they have some control over their learning. In other words, teachers need to be explicit about how they are providing students with opportunities for autonomy.

The secret to the success of an autonomy-supportive environment is that it allows individuals to perceive an internal locus of causality, making them feel like they are at the origin of their behaviours and thus more self-determined (Pelletier, Fortier, Vallerand & Briere, 2001). The danger of a non- autonomy-supportive environment is that shifts in locus of causality away from the self and towards another can shift the form of motivation to less self-determined forms, such as external or introjected (Pelletier et al., 2001). Common teaching practices such as offering rewards for reaching certain marks or posting marks can shift this locus of causality because the cause of the activity is no longer within the individual. For example, using rewards shifts the locus of causality to whoever values the goal that must be reached to receive the reward. Therefore, it is not surprising that autonomous motivation has been found to be higher when the basic psychological needs posited by SDT (autonomy, competence and relatedness), are fulfilled (Deci & Ryan, 2008b; Niemiec & Ryan, 2009). These are all internally felt needs; all reside within the self and their fulfillment allows autonomous motivation to flourish as they are facilitators of more inherently satisfying environments.

In short, teachers who are able to fulfill their students' needs for autonomy are more likely to also increase their students' autonomous motivation for

learning. This increase in autonomous motivation is beneficial for immediate and long-term outcomes. Given the generally accepted shift in our society towards more knowledge and information based professions (Leader, 2003) requiring more education and continuous learning than ever before, the more students can be autonomously motivated the better. The logical questions then become, what do learning environments look like and how can a learning environment be made more autonomy-supportive? It follows that introducing this information to teachers and framing it in the form of practical, feasible strategies that they can use in their classrooms may be one way to do so.

Teachers' Current Motivational Practices

While the idea of introducing new strategies that teachers can take into their classrooms is both timely and sensible, the question of what teachers are currently doing in their classes and what preservice teachers are being taught to incorporate into their future teaching approach is also important to examine. Is there room for these new strategies? Is this something that teachers are looking for? How do current motivational practices in the classroom affect students' motivation? These are all questions that must be answered prior to designing a new intervention to present to teachers.

A literature search in the *PsycInfo* database using the key words "Motivation," "Teachers," and "Classroom" produced 39 articles, of which only seven specifically examine the motivational strategies that teachers use in classrooms with average-achieving students. Two of these are dissertations and were not available to the researcher while another was a book. The remaining

four studies were primarily qualitative and tended to use observations and interviews as their primary sources of data. Hardré & Sullivan (2008) examined how rural, public high school teachers' individual differences and perceptions influence the motivation strategies that they use in their classrooms. Of particular interest is their finding that the majority of teachers surveyed admitted that they don't know how to motivate their students and that they tend to use more intuitive strategies to do so. Both Patrick, Kaplan & Ryan (2011) and Anderman, Andrzejewski & Allen (2011) examined motivational climates in terms of mastery and performance goals. Unsurprisingly, both studies found that mastery oriented practices were present in high-quality classrooms. Finally, Putwain & Symes (2011) found that teachers who use fear appeals (highlighting the consequences of failure) with students who perceive these appeals as threatening may be contributing to their students' feelings of anxiety and fear of failure while also encouraging the pursuit of mastery goals. Overall, there is a lack of research on what motivational strategies practicing teachers use in their classroom and why they intend to use them. There is sparse research on what preservice teachers intend to do in the classroom to help better motivate their students.

Interestingly, Lauermann and Karabenick (2011) have found that pre-service teachers tend to turn to performance-based practices, such as posting marks, using rewards and increasing competition, when they feel responsible for motivating their students. Many of the strategies preservice teachers report using in their work are counter to the central tenants of Self-Determination Theory, namely that the type of motivation to strive for is autonomous motivation and that

this type of motivation is experienced as internally located. In addition, these types of practices do not increase more positive forms of student motivation. In fact, referring back to the previously discussed motivation continuum (Figure 1), it is plausible that these types of practices may actually undermine already existing autonomous motivation for learning experienced by students who are already achieving at an average level as it makes this motivation feel more externally determined, thereby shifting it to a more externally determined form (Niemiec & Ryan, 2009). While teachers intend to motivate their students positively with the strategies that they implement in their classrooms, they may in fact be decreasing the amount of "good" motivation these students feel for learning.

Given that these extrinsically motivating practices are present in classrooms, it then raises the question of whether or not pre-service teachers are being presented with the "best practices" identified in the motivation research literature during their education. There is an abundance of research that emphatically states that extrinsically motivated environments are less adaptive for students (e.g. Brophy, 2005; Senko, Hulleman & Harackiewicz, 2011). In addition to this, Rowe (2010) notes that mastery learning climates are important to the development of autonomous motivation. Generally, students should be encouraged to strive to do their best and put forth their best efforts, an end that likely will not occur in a classroom that encourages external motivation by using external rewards, relative ability information or any of the other strategies that are hallmarks of an externally motivating learning environment. Learning

environments should be optimally motivating for all students and one way to do this is to facilitate environments that are more autonomously motivating, that focus on effort and mastery of tasks. However, the question of whether or not pre-service teachers are introduced to much of the literature around how to create optimally motivating classroom, based on motivational research principles, still remains. As such, in addition to the main focus on changing intended motivational strategies, this thesis will explore whether or not pre-service teachers are presented with this information. Finally, it is important to make any strategies suggested for teacher use both practical and feasible to implement in the classroom or they likely will not be incorporated. This thesis therefore also examines whether or not pre-service teachers' intentions to incorporate more motivationally sound strategies into their classrooms depends on how useful they found the information.

Given that pre-service teachers tend to endorse motivational strategies that are not adaptively motivating, according to theory and research (Lauermann & Karabenick, 2011), it seems that designing an intervention to provide teachers with feasible and practical strategies that are based in a motivation theory is timely and crucial to ensure that students are being encouraged to develop a lifelong love of learning. The following section explains the development of such a motivation intervention. It will also explain the structure and rationale behind the decisions made in its development.

The Autonomy-Support Motivation Intervention

As a result of the importance of presenting teachers with practical, feasible and evidence-based strategies that they can easily use in their classrooms, an intervention was developed. The intervention was intended to provide teachers with strategies to help better motivate their average-achieving students. Given the importance of fulfilling the need for autonomy in the classroom environment and the need and desire to have more autonomously motivated students, the researcher thought that an intervention that presents information about how to be more autonomy-supportive in the classroom was both timely and applicable. As a result, an hour-long motivation intervention based on SDT's research literature around autonomy support was created.

The intervention used in this research was partly based on the work of Reeve and colleagues (2004) while also incorporating information from the broader SDT research literature. Johnmarshall Reeve was kind enough to provide the researcher with the presentation that he and his colleagues used in this research (personal communication, July 19, 2011). An eighteen slide PowerPoint presentation was created (see Appendix A). Within these slides, there was an overview section, outlining the content of the intervention. This was followed by an introduction to what motivation is and a rationale for why pre-service teachers should be concerned about it. A brief summary of Self-Determination Theory was presented in order to justify the focus on autonomy-supportive strategies. The evidence basis of the intervention was then explored, based on the work of Reeve and colleagues (2004). Finally, five different strategies that pre-service

teachers could consider implementing in their classrooms were elaborated. These strategies were:

- Nurture inner motivation resources
- Provide explanatory rationales
- Rely on non controlling, informational language
- Display patience to allow time for self-paced learning
- Acknowledge and accept expressions of negative affect

During the elaboration examples of how the strategies could be applied to a variety of different educational subjects (e.g. Physical Education, Math, Science, English) were provided to participants.

Following the presentation of these strategies, participants were given the opportunity to complete a practise component that allowed them to apply the strategies that they learned about (see Appendix B). In particular, participants were asked to analyze a marked copy of an English assignment and identify components of the assignment and the feedback that did or did not support autonomy. Then participants revised any components identified as not autonomy-supportive thereby making them more autonomy-supportive. Participants considered these points individually for about three minutes and then discussed their ideas in small groups of three to five people for an additional five minutes. Following this small group discussion, a large group discussion, led by the researcher, took place to unpack what participants thought about the structure of the assignment, the feedback given by the fictional teacher and anything else they may have noticed. Finally, the researcher presented the "take home" messages of

the intervention. These include the fact that we want students to be more engaged in their education by allowing them the perception of choice around it, that how information, assignments and feedback are presented is at least as important as what is presented, and that we do understand that these strategies may create more work in the short term but that the long term benefits of incorporating more autonomy support into the classroom far outweigh the short term difficulties of its implementation.

After the formal intervention component, participants provided the researcher with their feedback around the novelty of the information, what they found useful about the intervention, what they thought about the content, and what they saw as barriers to implementation. We sought these answers to check students' perceptions about the ease and feasibility of actually using the strategies presented.

This motivation intervention was developed based on empirically validated principles that align with central tenants of Self Determination Theory. SDT states that when individuals' psychological need for autonomy is satisfied in a given environment, they will experience that environment as more optimally motivating and consequently, will be more engaged, more persistent and more autonomously motivated towards that given task. Unfortunately the literature seems to suggest that teachers seem to turn to more maladaptive types of motivational strategies with their students (Lauermann & Karabenick, 2011). Thus, to fill a gap in the research literature, and start a potential bridge from theory to practice, a motivation intervention for preservice teachers was

developed. It is hoped that grounding this intervention in autonomy-support, which has been thoroughly researched in the Self-Determination Theory literature, will provide preservice teachers with feasible and practical strategies that make a difference how they intend to motivate their students in the future.

Hypotheses

Hypothesis 1. It was hypothesized that preservice teachers would endorse more autonomy supportive motivational strategies after participating in the motivation intervention (i.e., the experimental group) than those who did not take part in the motivation intervention (i.e,. the control group).

Hypothesis 2. Within the experimental group, it was hypothesized that preservice teachers who had not previously been exposed to information about "best motivational practices" would show a greater shift to autonomy supportive motivational strategies than those who have previously been exposed to this information.

Hypothesis 3. Within the experimental group, it was hypothesized that preservice teachers who found the content of the motivation intervention useful would be more likely to endorse autonomy supportive motivational strategies than those who did not find it particularly useful.

Method

The participants and data presented in this thesis are part of a larger ongoing project on motivation interventions conducted at the University of Alberta by Dr. Lia M. Daniels. Only data pertinent to the specific research questions articulated in this document were analyzed.

Participants

Participants were 76 educational psychology students currently enrolled at the University of Alberta. They were a convenience sample to which the researcher had access because they shared one of two particular undergraduate courses. There were 13 participants who identified as male, and 63 participants who identified as female. Ages ranged from 19 to 39 years. The experimental group consisted of 25 participants and the control group consisted of 37 participants (see Results section for more details). Ethics approval for this research was sought and obtained from the Human Ethics Research Office at the University of Alberta (see Appendix C).

Procedure

The survey was administered via paper and pencil and during class time to both the experimental and control groups; however, the remaining procedures differed for the two groups and are described separately. At the start of one class those in the experimental group received a Letter of Information (see Appendix D) explaining what the researchers were examining generally and a questionnaire booklet (see Appendix E). If they agreed to participate, students were instructed to answer all items to the point where the booklet asked them to stop (Time 1, pre-

survey). Thus, consent was implied by participation. Once all participants completed the first 92 items in the booklet, the researchers started the Motivation Intervention presentation described in full above and lasting approximately one hour. Following the conclusion of the intervention, participants returned to their questionnaire booklets and completed the remaining items (Time 2, post-survey). Participants also removed the information section of the activity booklet to keep and handed in their open-ended answers to the researcher. Participants' questionnaires and activity booklets were matched and coded with the same code by the researcher.

For the control group, at the start of the semester participants received a Letter of Information (see Appendix D) explaining what the researchers were examining generally and a questionnaire booklet (see Appendix E). At that time, participants completed the full (Time 1, pre-survey) questionnaire booklet. Again, consent was implied by participation. No intervention was provided to the students. At the end of the semester, approximately two months later, the researchers returned to this class and asked the participants to complete the same questionnaire booklet (Time 2, post-survey). To ensure these students were not disadvantaged by not receiving the content associated with the intervention, a modified version of the intervention was presented after Time 2 data was collected. This included a similar handout as given to the experimental group designed to summarize the content and make the information easily accessible (see Appendix F).

Measures

A number of items were used in this survey to assess the three components addressed in the introduction: autonomy-supportive motivational strategies, novelty of information, and usefulness of information.

Autonomy Support Strategies. Autonomy supportive motivational strategies, the main dependent variable, was measured using the Autonomy Support subscale of the Teacher as Social Context Measure (Wellborn, Connell, Skinner & Pierson, 1992). Theoretically, this measure was designed to tap into 4 different facets of autonomy-supportive behaviours using 12 items: teacher controlling behaviours, teacher respect for students, the provision of choice and the provision of rationales for tasks. The researcher added one additional item to ensure that all aspects of autonomy support were touched upon, bringing the total item number for this scale to 13. All items were answered on a four point likert scale, with one meaning not at all true and four representing very true.

Contrary to the suggested scale design, an exploratory factor analysis, using varimax rotation, revealed loadings onto two factors both pre and post survey. An exploratory analysis was done as the researcher did not think that the items would factor into four separate factors, as suggested by the scale's authors (Wellborn et al., 1992). Varimax rotation was used, as suggested by Field (2005), to simplify the interpretation of the factors that emerged. These two factors were not easy to interpret. Closer examination showed that all of the items loaded onto the first factor with values larger than .20 and most larger than .30 (see Table 1) despite cross-loadings for some items. As such, because autonomy support has

Table 1.

Exploratory Factor Analysis One and Two Factor Solutions

	Pre-Survey (n=73)		Post-Survey (n=64)	
Item	Factor 1	Factor 2	Factor 1	Factor 2
1	.23	-.51	.36	-.27
2	.50	-.30	.44	-.23
3	.44	-.43	.71	-.34
4	-.55	.25	-.33	
5	.56	.20	.58	.22
6	.59		.64	-.39
7	.58	.30	.61	
8	.62		.73	-.17
9	.33		.67	-.20
10	.20		.40	
11	.30	.79	.44	.56
12	.06	.41	.62	.35
13	.20	.51	.65	.46
Eigenvalue	2.92	2.16	4.59	1.59

been treated as a single entity in most of the literature I decided to create a single variable representing autonomy support strategies.

Scores were calculated by averaging the positive and reverse coded items to obtain a total score for Autonomy Supportive Motivational Strategies in the classroom. It is important to note that the stem of these items was changed to better fit with the additional items that the researcher used to measure motivational strategies intended to be used in the classroom; the stem for these

Table 2.

Descriptive Statistics

Measure	Mean	SD	Skew	Kurtosis	Min	Max	N
Autonomy Support Pre-Survey	3.05	.26	.04	-.29	2.38	3.62	73
Autonomy Support Post-Survey	3.17	.35	.08	-.56	2.46	4.00	64
Group Membership	1.60	.49	-.44	-1.86	1.00	2.00	76
Novel Information	1.57	.50	-.31	-2.06	1.00	2.00	28
Usefulness of Information	3.14	.71	-.89	2.03	1.00	4.00	28

items was "Student motivation could be increased by…". Please see Appendix E for the measure.

The reliability for this measure was lower than anticipated: Pre-Survey α = .54, n = 73, Post-Survey α = .64, n = 64. Moreover, examining the reliability with items removed did not result in a meaningful improvement. However, it is important to note that it was difficult to find a scale that fit the parameters that the researchers were looking for both in theory and in form (i.e., short and appropriate stem). Additionally, the authors of this scale do not provide previous reliability information about it. A literature search revealed that this scale has not been used extensively and there is very little research with which to compare these results. Table 2 contains all of the descriptive information for all study variables.

Novelty of Info. Following the intervention, which is the main independent variable, participants were asked whether or not the information presented was novel for them. If it was not, they were asked where they had come across the information**.** The novelty of information functioned as an additional independent variable in the data analysis and was coded as either

new/never seen (= 1) or as seen before (= 2). This question was only relevant to the experimental group: 50% of students (*n* = 12) had been exposed to this type of information previously while 50% (*n* = 12) viewed this as new information.

Usefulness of Info. Similarly, following the intervention, participants were asked about the usefulness of the information and strategies (the content) presented to them. They were asked to choose from among a four option likert-type rating scale: Not at all useful, Somewhat Useful, Useful or Very Useful were the four options. This measure functioned as a final independent variable in analysis. Again, this question was only relevant to the experimental group: 3.6% reported not at all, 7.1% reported somewhat useful, 60.7% reported useful and 28.6% reported very useful.

Further to these three constructs and the intervention itself, various demographic questions were asked in order to provide a full illustration of the sample. It is important to note that all participants were presented the items in the same order so order effects are possible.

Rationale for Data Analysis

Data analysis for this research followed a 6-step procedure. In terms of preliminary analyses, the data were cleaned, descriptive statistics were computed, reliability analyses of all measures were done, and an exploratory factor analysis of autonomy support was completed, much of which is presented above in the measures section. After examining the correlations between all variables, the main analyses consisted of two mixed randomized-repeated measure analyses of variance (ANOVAs) and a regression analysis. Specifically, in the first ANOVA

autonomy supportive motivational strategies was the dependent variable and the presentation of the intervention with two levels (experimental or control) was the independent variable. In the second ANOVA, the dependent variable remained the same but novelty of information with two levels (new or previous exposure) was the relevant independent variable. Finally, autonomy supportive motivational strategies on the post-survey was regressed on its pre-survey assessment and ratings of usefulness in order to determine if the usefulness of the content played a role in students' likelihood to use these strategies beyond their earlier endorsement of the strategies. All data were analyzed using the Statistical Package for the Social Sciences (SPSS 19.0).

Results

Preliminary Analysis

Outliers. In order to clean the data and ensure that there were few to no outliers, data were examined in a number of different ways, along both univariate and multivariate options and in terms of demographic information. In terms of univariate examination, I computed z-scores for each measure with the intention of eliminating participants with z-scores greater than three on numerous measures; no participants were eliminated based on this criteria. Next I ran an explore function on the measures and no problems were noted. Participants who indicated demographic information (age, ethnicity, etc.) that was outside the expected range and therefore made them outliers were also candidates for elimination. Of these three cleaning procedures, none yielded any eliminated participants. For the multivariate outliers procedure, scatterplots between all measures were computed and participants who scored outside the general expected pattern were also candidates for elimination. However, no participants were eliminated as it was felt that the importance of maintaining the sample size was paramount. In sum, all of the 62 participants who completed both the pre and post survey were included in the analyses. The final sample had an age range from 19-39 years and a sex distribution of 8 males and 54 females. This sex distribution was expected given the gender distribution of the department from which the sample was drawn.

Assumptions. In terms of assumptions for testing variables, given the sample size certain assumptions (lack of skewness, lack of kurtosis and normality)

are not as necessary to meet as they are assumed to be met when a sample size approaches 25 (Field, 2005). However, in the interest of clarity, these assumptions will be dealt with for each measure or variable. Furthermore, it is important to interpret these assumptions in the context of the data; when some of them are not met, it is because they are not expected to be met.

Missing data existed for a few of the participants on the post survey; participants who were missing extensive data for either the presurvey or the post-survey were eliminated from analysis. 14 participants were eliminated based on this criteria; the final sample size was therefore 62 participants (see above for information about age and gender distribution). One participant in the experimental group did not complete the open-ended questions. No variables were skewed beyond the ±3 criterion of skew statistic over standard error of skew (Field, 2005). Further to this, no variable exceeds the ±3 for kurtosis ratio (kurtosis statistic over standard error of kurtosis) (Field, 2005). The final assumption to look at is whether or not variables are normally distributed. This is important because if the variable is not normally distributed, then the sampling distribution, on which ratios such as *t*-tests are based, is not normally distributed and invalid. All variables appeared normally distributed according to their histograms.

Main Analyses

Correlations. There was a significant positive relationship between the usefulness of the intervention and the autonomy-supportive motivational strategies on the post-survey, $r = .47$, $p = .02$. This indicates that individuals who

Table 3.

Complete Correlation Matrix for All Variables

Measure	Group Membership	Novel Information	Usefulness of Information	Autonomy-Support Pre-Survey	Autonomy-Support Post-Survey
Group Membership[b]	1.00	-	-	-.03[a]	-.22[a]
Novel Information[b]		1.00	-.21 [a]	-.11	-.01
Usefulness of Information			1.00	.54**	.47*
Autonomy Support Pre-Survey				1.00	.64**
Autonomy Support Post-Survey					1.00

Note. [a] = Spearman's rho correlation; [b] = subsample of n=24 experimental only; * $p < .05$; ** $p < .01$

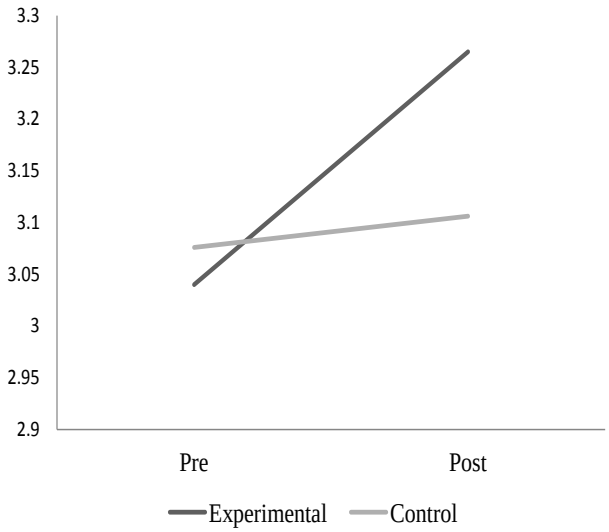
found the intervention useful were more likely to endorse autonomy-supportive strategies. Likewise, it is notable that time 1 assessment of autonomy supportive strategies correlated strongly but not redundantly with its time 2 assessment , $r = .64$, $p < .01$ Correlations between all variables are presented in Table 3.

Hypothesis 1. *Within the experimental group, it was hypothesized that preservice teachers would endorse more autonomy supportive motivational strategies after participating in the motivation intervention than those who did not take part in the motivation intervention.*

A two way mixed repeated measures analysis of variance (ANOVA) was computed, with the mean of the autonomy supportive motivational strategies functioning as dependent variable. Time (pre and post survey) and Group

Figure 2.

Graph of the Interaction Effect of Time and Group Membership on Autonomy Supportive Motivational Strategies



Membership (experimental, n = 25 or control, n = 37) were the independent variables. Due to the fact that there were only two different conditions that participants could be in, the assumption of sphericity, which is important when analyzing in a repeated measures design, does not apply.

There was no significant main effect of group, F (1, 60) = .69, p = .41 suggesting the groups were equivalent at the outset. There was a significant main effect of time, F (1, 60) = 13.84 , p > .001. This means that the number of autonomy supportive motivational strategies endorsed before the intervention was significantly differently from the number endorsed after the intervention. The main effect of time was qualified by a significant interaction between time and group, F (1, 60) = 8.07, p = .01, presented in Figure 2. This indicates that the

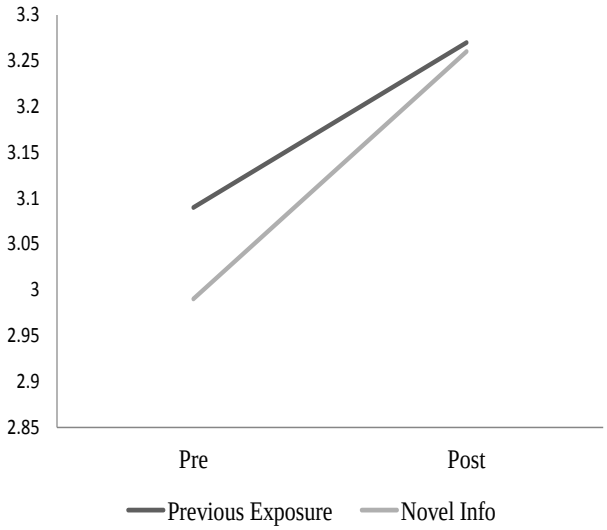
amount of autonomy support motivational strategies endorsed pre and post intervention differed depending upon group membership.

A simple main effects analysis was completed to tease out the interaction effect. The main effect of group within this interaction was not significant. An independent samples *t*-test was computed for the experimental group (M = 3.15, SD = .32) and the control group (M = 3.09, SD = .26), t (60) = .83, p = .41 (two-tailed). The main effect of time, however, was significant. A repeated measures ANOVA revealed that there was a statistically significant difference between pre and post survey autonomy supportive motivational strategies: F (1, 61) = 9.36, p = .003, *partial* η^2 = .133. Additionally, further analysis of the difference between the groups reveals that there was no significant difference between the experimental (M = 3.05, SD = .28) and the control (M = 3.06, SD = .25) groups on the pre-survey, t (71) =-.10, p = .92 (two-tailed). However, there is a significant difference between the experimental (M = 3.26, SD = .39) and the control (M = 3.11, SD = .31) groups on the post survey: t (62) = 1.70, p > .05 (one-tailed). Thus, preservice teachers endorsed roughly the same amount of autonomy supportive motivational strategies on the pre-survey. Those preservice teachers who took part in the intervention endorsed significantly more autonomy supportive motivational strategies on the post-survey than did those who did not take part in the intervention.

Hypothesis 2. *Within the experimental group, it was hypothesized that preservice teachers who had not previously been exposed to information about "best motivational practices" would show a greater shift to autonomy supportive*

Figure 3.

Graph of the Main Effect of Novel Information within the Experimental Group



motivational strategies than those who had previously been exposed to this information.

A two way mixed repeated measures analysis of variance (ANOVA) was computed, with the mean of the autonomy supportive motivational strategies functioning as dependent variable. Time (pre and post survey) and Novel Information (previous exposure, n = 12 or not, n = 12) were the independent variables. Due to the fact that there were only two different conditions that participants could be in, the assumption of sphericity, which is important when analyzing in a repeated measures design, does not apply.

There was a significant main effect of time, F (1, 22) = 15.72, p = .00, *partial* η^2= .417. This means that the number of autonomy supportive

motivational strategies endorsed before the intervention was significantly differently from the number endorsed after the intervention (Figure 3).

There was no significant main effect of whether or not the information was novel, F (1, 22) = .14, p = .71. There was no significant interaction between time and whether or not the information is novel, F (1, 22) = .63, p = .44. In short this means that within the experimental group, there was a shift within those participants who had not been exposed to the information before but that this shift was not significantly different from those who had been exposed to the information before.

Hypothesis 3. *Within the experimental group, it was hypothesized that preservice teachers who found the content of the motivation intervention useful would be more likely to endorse autonomy supportive motivational strategies than those who did not find it useful.*

To determine whether students who found the intervention more useful experienced a greater shift in intended autonomy motivational strategies from pre-survey to post-survey, post-survey autonomy support strategies (outcome variable) were regressed on usefulness after controlling for pre-survey scores on the same autonomy support scale (see Table 4). As expected, autonomy supportive motivational strategies endorsed on the pre-survey significantly predicted the amount of these same strategies endorsed on the post-survey, β = .67, p = .00. However, the amount that participants found the information presented in the intervention useful did not significantly predict post-survey autonomy-supportive motivational strategies β = .11, p = .55.

Table 4.

Mean of Autonomy Supportive Motivational Strategies Post-Survey Regressed on Mean of Autonomy Supportive Motivational Strategies Pre-Survey and Usefulness of Information Presented

Variable	*B*	SE *B*	*β*	*t*	*p*	Regression
Step 1						
Constant	.40	.60		.66	.52	R = .74
Autonomy Pre-Survey	.88	.23	.67	3.84	.00	R^2 = .54
Usefulness of Info	.06	.10	.11	.61	.55	Adj. R^2=.50

Based on the correlations presented in Table 3, it appears that usefulness of the content presented in the intervention had a strong zero-order relationship with autonomy supportive motivational strategies on both the pre and post-survey. However, when participants' initial likelihood to use these types of strategies was controlled for, the usefulness of the information presented in the interventions did not uniquely predict any additional change to autonomy supportive motivational strategies.

Discussion

The purpose of this study was to see if preservice teachers changed the motivation strategies that they intended to use with their future students based on information that they were presented about motivational "best practices" in a motivation intervention. This is important because it appears that preservice teachers currently tend to think maladaptive motivational practices may be more effective in motivating their future students (Lauermaan & Karabenick, 2011). By presenting them with information from the motivation research literature, I successfully encouraged them to report an intention to use more adaptive strategies with their future students.

Three findings are important to highlight. First, I have preliminary evidence that the motivation intervention was effective in shifting participants towards more autonomy-supportive strategies. Second, it appears that the novelty of the information is less important than simply being presented with the information, whether through the intervention or previously. Third, whether or not students found the intervention useful or not did not play a role in their likelihood to use these strategies after the intervention, once their likelihood to use them before the intervention was controlled for.

Effectiveness of the Intervention

The motivation intervention designed for this research was effective and significantly shifted the strategies that preservice teachers intend to use to motivate their students relative to the control group. Even though this was the first implementation of the intervention, there was still a significant shift towards

a more autonomy-supportive motivational style. Further refinement of the intervention may lead to even greater results. This finding duplicates Reeve and colleagues (2004) research, which demonstrated that autonomy-support is a motivational style that can be taught. The shift towards more adaptive and improved intentions in the classroom is important because it demonstrates that these preservice teachers have a desire to improve the motivational climate in their classrooms and it demonstrates that preservice teachers are open to learning about how to best motivate their students.

While it would be nice to think that this shift towards autonomy-support was paired with a reduction in maladaptive strategies, this was not tested in this project. Thus, it is possible that students may still use competition and other strategies, but at least pair them with autonomy-support. In the high school learning environment, this may not necessarily be a bad thing. Ratelle and colleagues (2007) demonstrate this in their work; they found that high school students who are high in both autonomous and controlled motivation seem to do better on a variety of variables in comparison to student who are higher on controlled motivation. However, they did not find a profile where autonomous motivation was higher than controlled motivation, which suggests that "the high school climate is unsuccessful in fostering such a motivational profile" (p. 740). SDT would still posit that an individual who has a motivational profile where they are higher in autonomous motivation than in controlled motivation would be better adapted to that environment. The effectiveness of this intervention is one step towards helping preservice teachers create more optimal learning

environments for their students. These students will then be more engaged, curious and self-directed in their learning, which has important long-term consequences in our "knowledge economy." Of course these outcomes were beyond the scope of the current study and should be considered in longitudinal work.

The intervention also provided these preservice teachers with a short background in motivation and basic knowledge about Self-Determination Theory. Presumably this could mean that when one of these strategies may not work for them, they will be able to hypothesize why. This supports the importance of having a sound theoretical background and previous research underlying the use of any strategy that we suggest to teachers; these strategies need, to a certain extent, to have been proven efficacious before being presented (Hans & Weiss, 2005). It is important to provide strategies that we know will work rather than things that we think may work. The evidence basis of the intervention needs to be strong in order for there to be true buy-in by preservice teachers, practicing teachers, and administrators.

The intervention was effective; however, it probably could have been more effective if feedback from teachers was sought prior to its delivery. This is one area for future research. By soliciting feedback from those who took part in the intervention and opening up a dialogue with current teachers around what they are looking for, the intervention would likely be able to be even more efficacious. Finally, it would be interesting and timely to do some research on adult learning and knowledge translation to see how these two concepts could inform the

refinement of the intervention. Overall, this motivation intervention was shown to be effective by significantly changing the strategies that preservice teachers intend to use to motivate their students despite the fact that this was its first application.

The Impact of Not Being Previously Exposed to Motivation Research

I theorized that if preservice teachers had not previously been exposed to information about autonomy support, they would endorse more autonomy-supportive strategies following exposure to this information (i.e. the intervention). While there was a shift towards more autonomy-supportive strategies in those who had not previously been exposed to the information, the shift was non-significant compared to those who had previous exposure. Some reasons for the non-significant shift may include the small sample size (24 participants) and the fact that this was the first use of the intervention. Further research could have a larger sample size and could use some of the refinements suggested in the previous section to make the intervention better. Following this enhancement, we may find that this non-significant shift becomes significant.

Additionally, the questions used to determine exposure/non-exposure could also be refined and made more rigorous. It may be that some preservice teachers have been exposed to this information without realizing it or knowing that this was exactly what it is. They would therefore be expected to endorse more autonomy-supportive strategies on the pre-survey than those who actually have never been exposed to the information, falsely inflating the pre-survey mean and hiding a significant relationship between initial exposure to the information

and intention to apply these strategies. While this may be the case, these results also demonstrate another important finding: after exposure to this information, preservice teachers are more likely to endorse these strategies. The statement that it is important to present preservice teachers with information about motivational best practices is thus supported. Preservice teachers will incorporate what they feel is important into their teaching philosophy; they simply need to be exposed to all of the information. The results from this research suggest that when preservice teachers are exposed to information about motivational best practices, they are more likely to endorse these strategies. In this case, exposing preservice teachers to as much information as possible about different teaching strategies seems prudent. They will decide what it is that they want to incorporate into their classrooms. Whether the information about best motivational practices is presented in this intervention or in another setting and format is perhaps not the key; the key may be the actual exposure to the information.

A Useful Intervention (on the Surface)

The results of this research seem to suggest that preservice teachers' ratings of usefulness of the intervention have little to no impact on their likelihood to use these autonomy-supportive strategies in their future classrooms. One reason for this may be that preservice teachers may be more focused on concrete, easily applied strategies that will produce results quickly. An example of this type of resource is the book *Increasing Student Motivation: Strategies for Middle and High School Teachers* (Theobald, 2006). This book is essentially a list of different strategies that teachers can attempt, divided into chapters that cluster

around different difficulties that students may be struggling with (e.g. mindset or timing), to help increase student motivation in their classroom. The strategies provided are sound; however, the author does not provide help or further information about what to do if they do not work. Theoretically, preservice teachers who took part in our intervention would have some idea about why the strategies they are trying to use do not work because they understand, at an admittedly basic level, the theory behind the strategy. The intervention is therefore more useful for them than simply picking and choosing strategies out of a book.

In future work, it would be a good idea to measure how much information students retained about SDT and autonomy-support as it was not measured in this research. The amount of information retention should be considered in future work with this intervention. The reality is that being more autonomy-supportive will make more work for a teacher in the short term because it requires a re-imagination of how that teacher teaches and intends to motivate their students. However, once that work is completed (e.g. re-designing assignments), there can be big changes in students. As previously stated, more motivated students are more engaged, more curious and more persistent, all qualities that serve to make a classroom more pleasant to teach in and to allow students to be inspired towards lifelong learning.

Implications of this Research

There are three major implications for this research. First, preservice teachers are open to learning about new and different ways of doing things. They

listened to the information presented to them in the intervention and decided for themselves whether or not it made sense to incorporate these strategies into their teaching style. It is important that we give our preservice teachers credit for the skills that they possess; they can be presented with different perspectives on an issue (in this case motivation) and make up their minds about what they want to use in their future practise.

Second, these strategies can have a major impact on students' levels of motivation towards learning, if they are actually implemented by preservice teaches as they move into practice. While there will undoubtedly be some resistance to change, as there always is, it is very important to make school a more engaging and motivating experience for students. Autonomy-support is one of the few motivation interventions that has the ability to work with students at varying levels of achievement to increase levels of autonomous motivation across the board. It is important that teachers and administrators buy-in to the intervention and the importance of having autonomously motivated students because the results can be tremendous.

Finally, there are implications for how we train our preservice teachers. If we want them to use more sound motivational practices in their classrooms, it follows from Bandura's Observational Learning (Santrock, 2005) that we must model these practices for them in order for them to learn how to do this. It would be sensible to have an explicit component to teacher training that talks about motivation, how to increase student motivation and what types of things will forestall students' natural growth tendencies and curiosity.

Limitations of the Research

There are a few limitations to this research. First, the sample size and type are not optimal. The size itself is small, with only 25 participants filling out both pre and post-survey measures in the experimental group. It would be better to have a larger experimental group (Field, 2005). However, the fact that significant results were found with this small of a group is encouraging; theoretically, with a larger sample size, the results may be stronger. The fact that this was a convenience sample is also a limitation; it limits the generalizability of the findings outside the parameters of this specific sample. Given the fact that this was a convenience sample of preservice teachers, it also makes it difficult to generalize the results to practicing teachers. Many practicing teachers went through very different training programs from the one that the participants who make up this sample have gone/are going through. Additionally, there may be differences in what teachers intend to do in the classroom and the actual realities of their experiences in how students seem to be best motivated. While it is difficult to generalize to this larger population of practicing teachers, treating this data with preservice teachers as a pilot for a larger project with practicing teachers makes it applicable.

Second, the intervention could have been made more effective by soliciting the feedback of preservice and practicing teachers about what they would like from a motivation intervention. Unfortunately, due to the time constraints of this research, this was not feasible. It does, however, suggest an

area for future research and how further refinement of the intervention could take place.

Finally, the measure used to measure autonomy-supportive motivational strategies may not have been as rigorous as it could have been; there is little research that has used it. However, it was felt that it tapped the overarching idea of autonomy-support well and had a realistic number of items to include in the larger project. None of these limitations are sufficient to undo the importance of the findings.

Suggestions for Future Research

These results are interesting and suggest future avenues of research that have the potential to be equally as interesting. First, it would be prudent to refine the motivation intervention through the use of focus groups to make the intervention more effective and more responsive to teachers' needs. Looking to answer the questions of what teachers actually want and how they feel that we could improve the intervention, the focus groups could be conducted with both practicing and preservice teachers to ensure that the needs of both are met in the intervention. Second, it would be good to follow the preservice teachers who attended the intervention into their practica to see if they actually use the strategies that they learned at the intervention presentation. Additionally, it would be nice to be able to observe these teachers in the classroom to see if they apply the strategies in their teaching. This would enable triangulation of the data and ensure that the intervention was actually efficacious and the information being learned in it was being applied after teachers attend it.

Another avenue of research would be to assess students' feelings of autonomy in the classroom, both before and after their teachers attend the intervention. This is an important consideration because while teachers can do many things to create a more optimal learning environment, if students do not feel the effects of these strategies or techniques, then the techniques and strategies are not going to be effective or have the impact that researchers may expect (Reeve & Jang, 2006). Encouraging students to evaluate their learning environments will also enable us to more effectively target the intervention to those areas where students feel less supported. A first step towards this is to deliver the intervention to practicing teachers as professional development and then following them and their students over the school year to see the teachers change the strategies that they use and if students' feelings of autonomy change over the year.

An additional interesting area of future research may be to see how teachers' feelings of autonomy in their own work impact their likelihood to apply autonomy-supportive motivational strategies in their classrooms. There is some research in the literature that suggests that teachers who "must" do things such as teach to standardized tests or standardized curriculum tend to be less autonomy-supportive in their teaching styles (Niemiec & Ryan, 2009). These teachers have little choice in their own work so they are less likely to provide opportunities for choice (autonomy) to their students. Curriculum and testing, as it stands in Alberta, allows little room for student self-direction or self-pacing due to the sheer amount of information and conceptual knowledge that teachers are expected to teach their students, measured on Provincial Achievement Tests (Alberta

Education, 2011; Ryan & Weinstein, 2009). Due to the amount of knowledge that students are expected to attain every year and the fact that these same students write standardized exams to ensure that their teachers are "teaching" them this required information, may mean that teachers do not feel much autonomy in their teaching practise (Niemiec & Ryan, 2009). Research completed in Canada by Pelletier, Seguin-Levesque & Legault (2002) observed that when teachers have to comply with curriculum and performance standards, they are less autonomous in their teaching. When they feel less at the origin of their teaching decisions, they are more controlling and therefore less autonomy-supportive of their students. No matter how useful a motivation intervention is, if teachers' own psychological needs are not being met in their teaching environment, it follows that they are unlikely to be able to meet their students' needs in similar environments.

Finally, the intervention could be extended beyond autonomy-support to supporting the other psychological needs proposed by Self-Determination Theory, discussed in the literature review section of this thesis: competence and relatedness. Incorporating these into the intervention would allow for a more rounded and balanced classroom environment. Overall, the intervention designed for this research provides a good basis for future research on the same topic and demonstrates that there is a need for this type of information to be presented to teachers. It also demonstrates that presenting teachers with this type of information can potentially have a very positive impact on the classroom learning environment.

Conclusion

This thesis has provided support for the importance of developing effective interventions that focus on helping teachers create optimal learning environments for students. The intervention was based in Self-Determination Theory (Ryan & Deci, 2000a) and focused on how teachers could be more autonomy-supportive in the classroom environment. Autonomy is one of three psychological needs theorized by Self-Determination Theory that need to be met in order for an environment to be experienced as optimally motivating. The motivation intervention was effective in significantly changing the autonomy-supportive motivational strategies of preservice teachers; after the intervention, they endorsed more autonomy-supportive strategies. Teachers who had not previously been exposed to this information showed a non-significant shift to a more autonomy-supportive motivational style. However, it appears that exposure to this information whether through this intervention or through previous sources contributes to a more autonomy-supportive style. Preservice teachers who found the intervention useful were no more likely to endorse autonomy-supportive motivational strategies than those who found it less useful, after controlling for their original tendency to use these strategies. This research demonstrates the importance of exposing preservice teachers to information from the research literature about practical, feasible and evidence-based techniques that they can easily implement in their classrooms to make the learning environments they create more optimal for their students.

The research completed in this thesis addressed the disconnect between research and practise in terms of teachers' motivational strategies. It did so by creating an effective motivation intervention that was used with preservice teachers. Further research could refine this intervention and apply it in a longitudinal design, with both preservice and practicing teachers, while also soliciting student feedback about their teachers and observing teachers' actual motivational practices in the classroom. It is hoped that the results of this research will help teachers create optimal learning environments for the majority of students by providing them with evidence-based strategies that help to catalyze and inspire both a desire towards and an enjoyment of lifelong learning. This is a very timely and important goal given the generally accepted shift in our society towards more knowledge and information based professions (Leader, 2003), which require more education and continuous learning than ever before. Education and learning are becoming part of the currency of our society and it is imperative that we consider and research how teachers can create learning environments where students are more motivated to learn.

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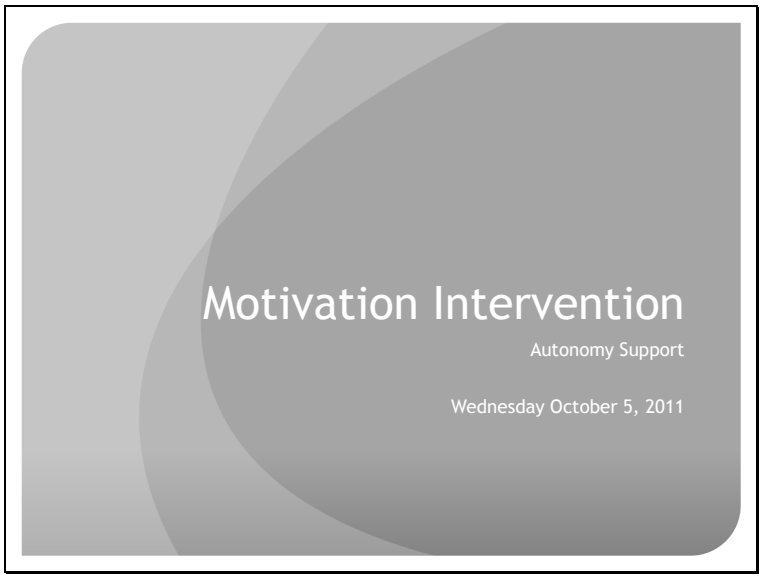
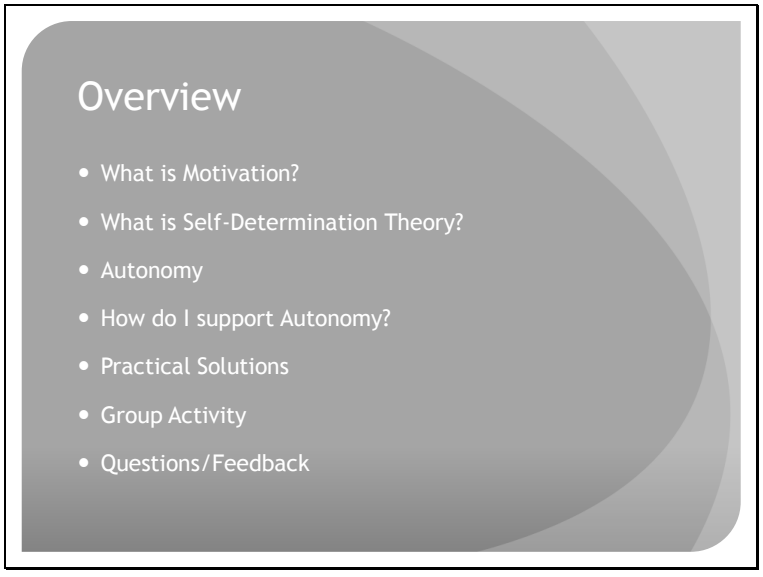
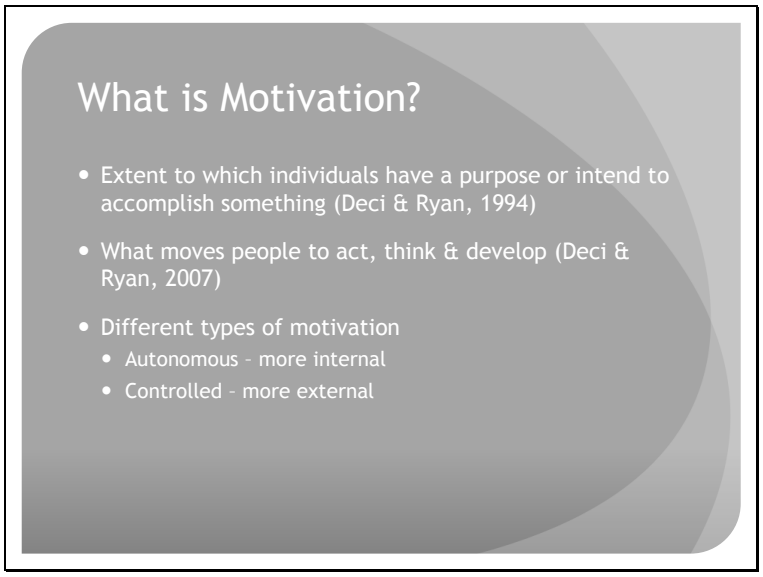
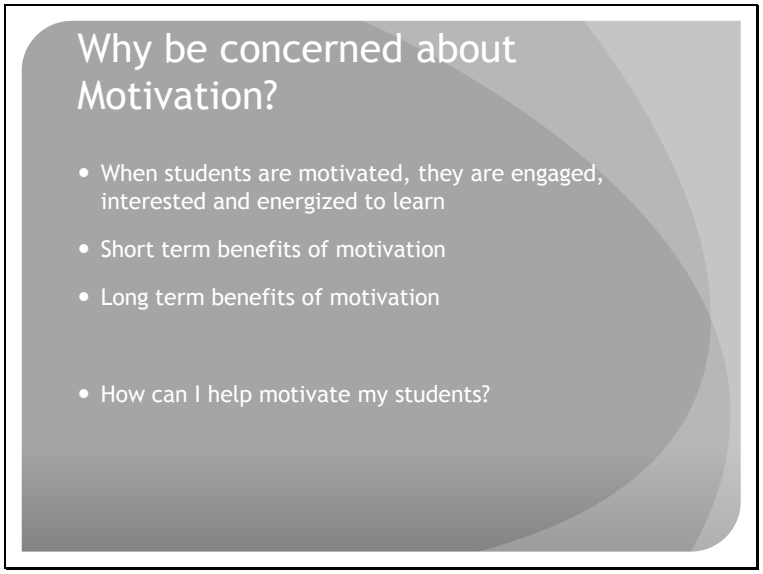
Appendix A.

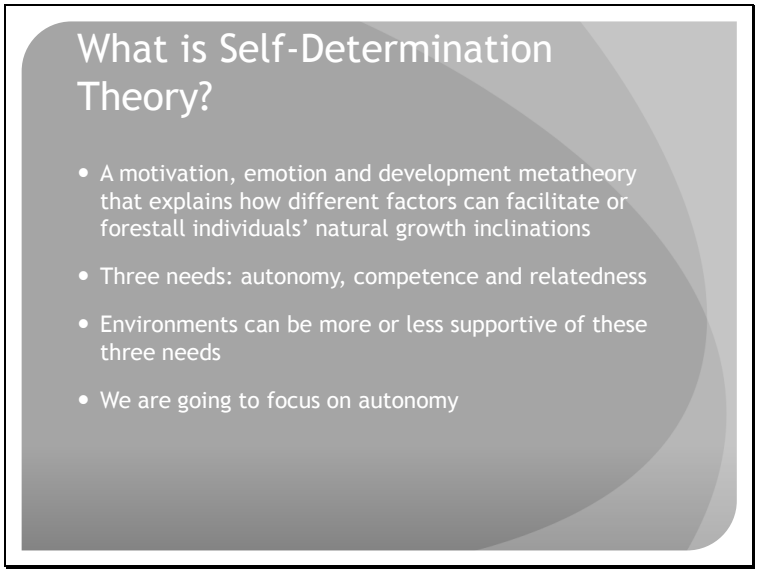
Autonomy-Support Motivation Intervention Powerpoint Slides

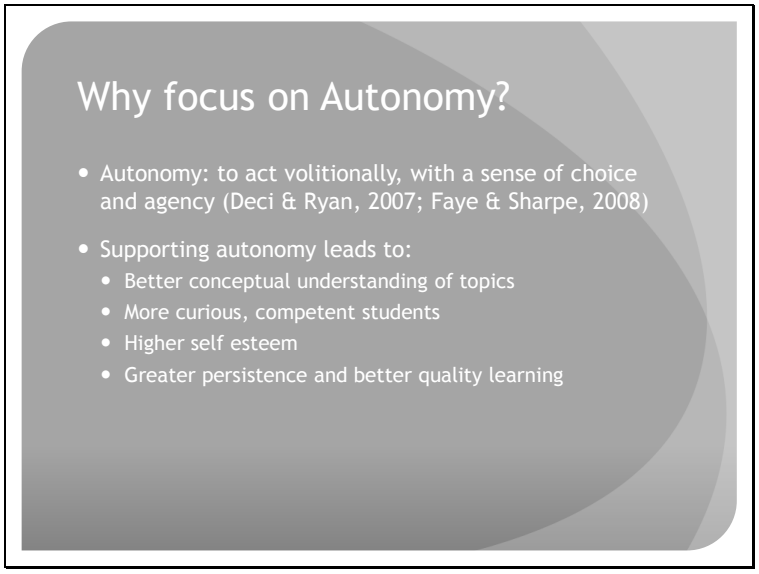





What is Motivation?
• Extent to which individuals have a purpose or intend to accomplish something (Deci & Ryan, 1994)
• What moves people to act, think & develop (Deci & Ryan, 2007)
• Different types of motivation
• Autonomous – more internal
• Controlled – more external

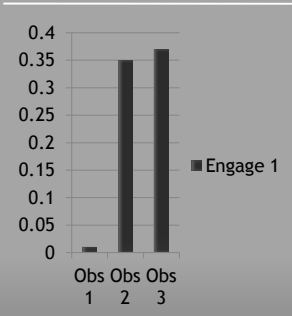

Why be concerned about Motivation?
• When students are motivated, they are engaged, interested and energized to learn
• Short term benefits of motivation
• Long term benefits of motivation
• How can I help motivate my students?


What is Self-Determination Theory?
• A motivation, emotion and development metatheory that explains how different factors can facilitate or forestall individuals' natural growth inclinations
• Three needs: autonomy, competence and relatedness
• Environments can be more or less supportive of these three needs
• We are going to focus on autonomy


Why focus on Autonomy?
• Autonomy: to act volitionally, with a sense of choice and agency (Deci & Ryan, 2007; Faye & Sharpe, 2008)
• Supporting autonomy leads to:
• Better conceptual understanding of topics
• More curious, competent students
• Higher self esteem
• Greater persistence and better quality learning

The Evidence

Student Engagement Increases in an Autonomy Supportive Environment



(Reeve, Jang, Carrell, Jeon & Barch, 2004)

Leads to . . .

- Increased interest in lessons
- Better learning outcomes
- Intrinsic motivation for learning

How can I support autonomy in my classroom?

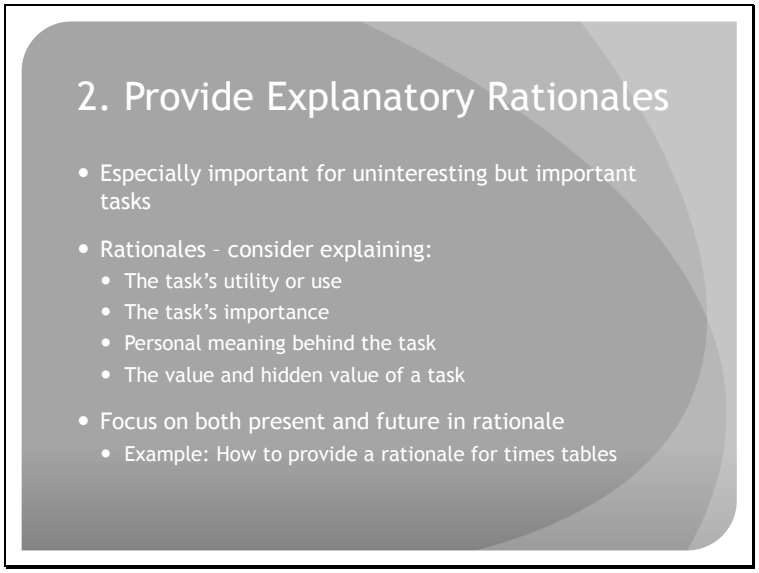
How can I create an autonomy supportive environment in my classroom?

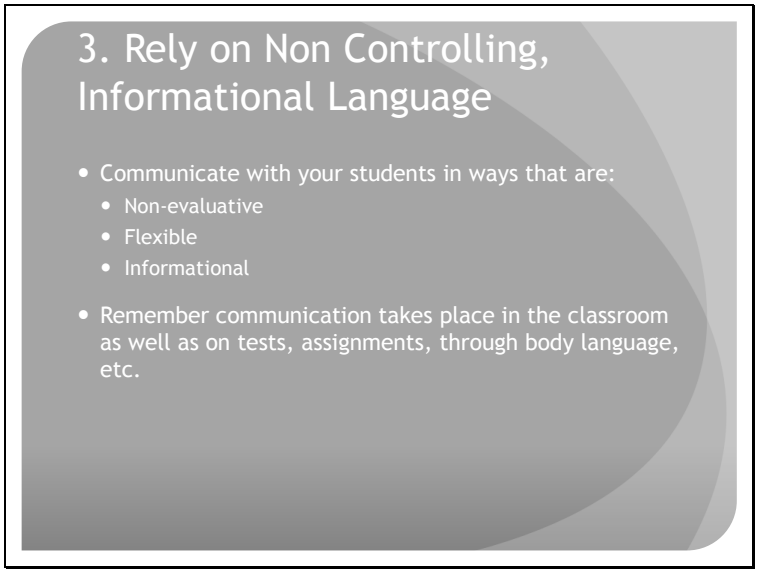
1. Nurture inner motivation resources
2. Provide explanatory rationales
3. Rely on non controlling, informational language
4. Display patience to allow time for self-paced learning
5. Acknowledge and accept expressions of negative affect

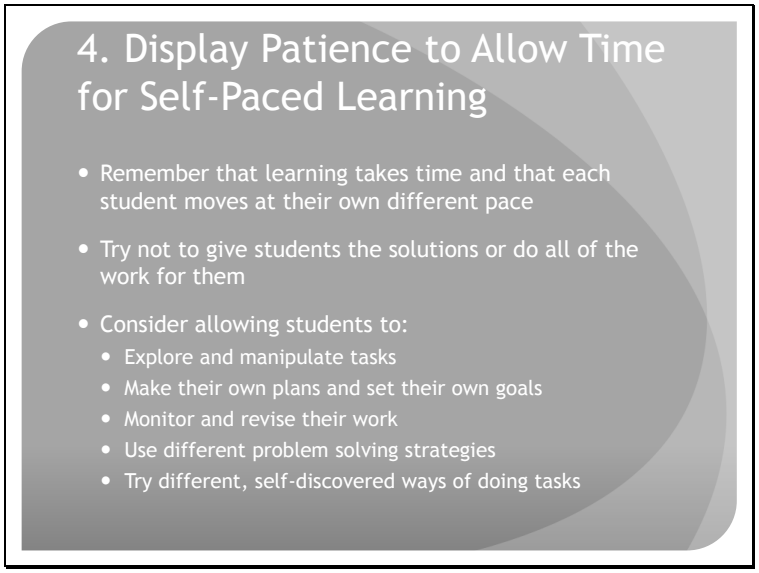
Yes it can be that easy

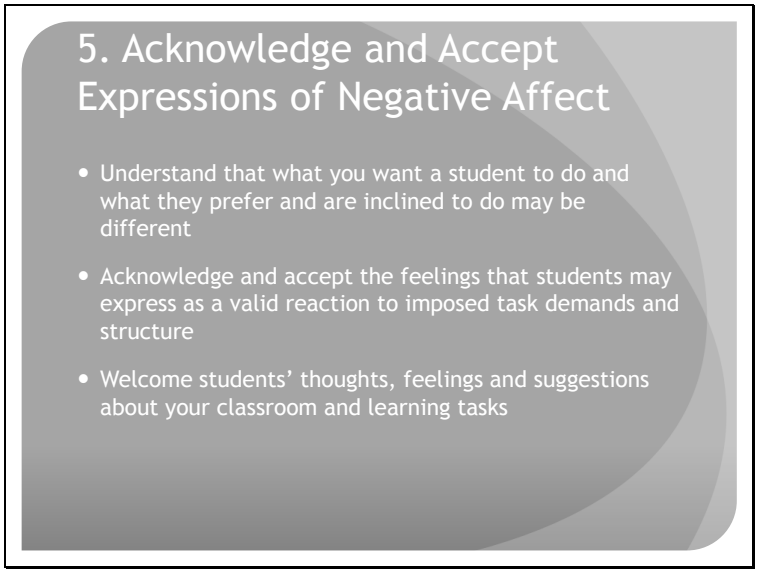
1. Nurture Inner Motivational Resources

- Identify and develop those already existing strengths
- Facilitate already existing strengths and help build capacity in other areas
- Consider:
  - Students' Interests
  - Students' Curiosity
  - Intrinsic Motivation
  - Intrinsic Goals
  - Internalized Values


2. Provide Explanatory Rationales
• Especially important for uninteresting but important tasks
• Rationales – consider explaining:
• The task's utility or use
• The task's importance
• Personal meaning behind the task
• The value and hidden value of a task
• Focus on both present and future in rationale
• Example: How to provide a rationale for times tables

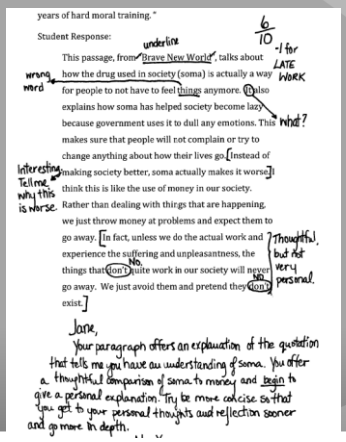

3. Rely on Non Controlling, Informational Language
• Communicate with your students in ways that are:
• Non-evaluative
• Flexible
• Informational
• Remember communication takes place in the classroom as well as on tests, assignments, through body language, etc.


4. Display Patience to Allow Time for Self-Paced Learning
• Remember that learning takes time and that each student moves at their own different pace
• Try not to give students the solutions or do all of the work for them
• Consider allowing students to:
• Explore and manipulate tasks
• Make their own plans and set their own goals
• Monitor and revise their work
• Use different problem solving strategies
• Try different, self-discovered ways of doing tasks


5. Acknowledge and Accept Expressions of Negative Affect
• Understand that what you want a student to do and what they prefer and are inclined to do may be different
• Acknowledge and accept the feelings that students may express as a valid reaction to imposed task demands and structure
• Welcome students' thoughts, feelings and suggestions about your classroom and learning tasks

5 minutes to try it

Trying It Debrief



years of hard moral training."

Student Response:

6/10 -1 for LATE WORK

underline

This passage, from "Brave New World", talks about how the drug used in society (soma) is actually a way for people to not have to feel things anymore. It also explains how soma has helped society become lazy because government uses it to dull any emotions. This makes sure that people will not complain or try to change anything about how their lives go. [Instead of making society better, soma actually makes it worse.] I think this is like the use of money in our society. Rather than dealing with things that are happening, we just throw money at problems and expect them to go away. [In fact, unless we do the actual work and experience the suffering and unpleasantness, the things that don't quite work in our society will never go away. We just avoid them and pretend they don't exist.]

wrong word

What?

Interesting. Tell me why this is worse.

No.

No

Thoughtful, but not very personal.

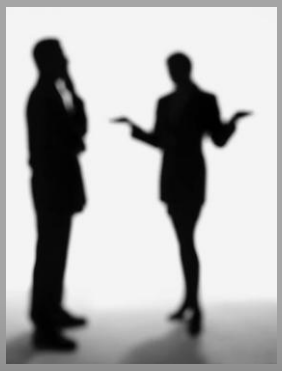
Jane,

Your paragraph offers an explanation of the quotation that tells me you have an understanding of soma. You offer a thoughtful comparison of soma to money and began to give a personal explanation. Try be more concise so that you get to your personal thoughts and reflection sooner and go more in depth.

Take Home Message

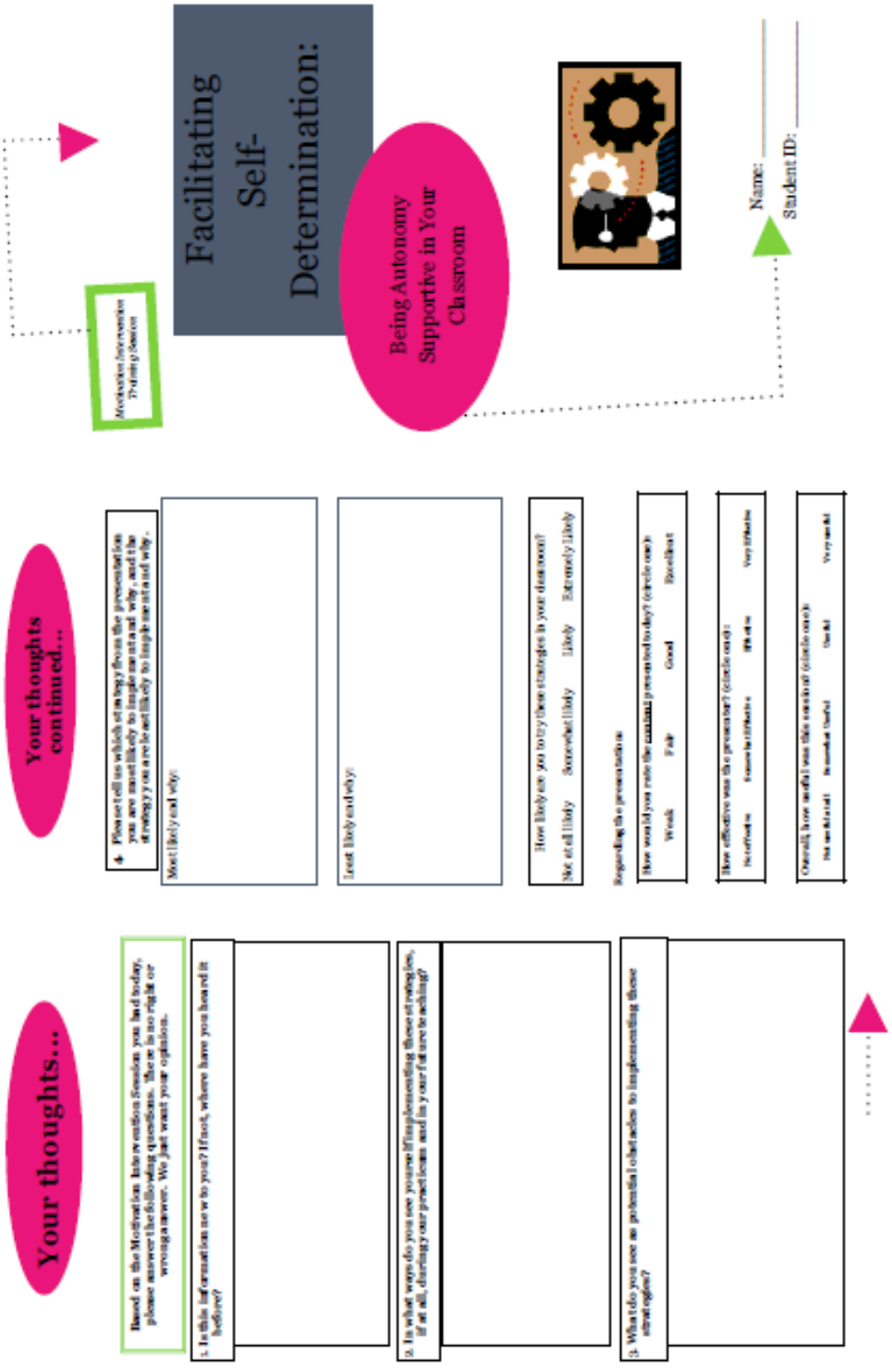
- Take your students' perspectives and think about how to help them take charge of their educations
- How it is presented is at least as important that what is presented
- Some of these ideas may create more work for you in the short term, but in the long term, they will help you have more motivated, engaged students, which will make your classroom easier to manage and more pleasant to teach in
- Don't get discouraged easily as it may take a while before you start to see results

Your thoughts



Appendix B.

Practise Component and Handout for Experimental Group



5 Ways to Support Autonomy

Nurture inner motivation resources

- Identify and develop those already existing strengths
- Facilitate already existing strengths and help build capacity in other areas
- Consider:
  - Students' Interests
  - Students' Curiosity
  - Intrinsic Motivation

Provide explanatory rationales

- Especially important for uninteresting but important tasks
- Rationales – consider explaining:
  - The task's utility or use
  - The task's importance
  - Personal meaning behind the task
  - The value and hidden value of a task
- Focus on both present and future in rationale

Rely on non controlling, informational language

- Communicate with your students in ways that are:
  - Non-evaluative
  - Flexible
  - Informational
- Remember communication takes place in the classroom as well as on tests, assignments, through body language, etc.

Display patience to allow time for self-paced learning

- Remember that learning takes time and that each student moves at their own different pace
- Try not to give students the solutions or do all of the work for them
- Consider allowing students to:
  - Explore and manipulate tasks
  - Make their own plans and set their own goals
  - Monitor and revise their work
  - Use different problem solving strategies
  - Try different, self-discovered ways of doing tasks

Acknowledge and accept expressions of negative affect

- Understand that what you want a student to do and what they prefer and are inclined to do may be different
- Acknowledge and accept the feelings that students may express as a valid reaction to imposed task demands and structure
- Welcome students' thoughts, feelings and suggestions about your classroom and learning tasks

Above all else . . .

- Take your students' perspectives
- Think about how to help them take charge of their educations through their own decisions and choices

Instructions:

Read the following passage from Adolus Huxleys' Brave New World and respond to it in the format we have practised. Your response should be 150 words and include personal reflection on the passage. You have 15 minutes to complete the paragraph.

"And if ever, by some unlucky chance, anything unpleasant should somehow happen, why, there's always soma to give you a holiday from the facts. And there's always soma to calm your anger, to reconcile you to your enemies, to make you patient and long-suffering. In the past you could only accomplish these things by making a great effort and after years of hard moral training."

Student Response:

6/10 -1 for LATE WORK

This passage, from Brave New World (underline), talks about how the drug used in society (soma) is actually a way (wrong word) for people to not have to feel things anymore. It also explains how soma has helped society become lazy (what?) because government uses it to dull any emotions. This makes sure that people will not complain or try to change anything about how their lives go. [Instead of making society better, soma actually makes it worse.] I think this is like the use of money in our society. (Interesting. Tell me why this is worse.) Rather than dealing with things that are happening, we just throw money at problems and expect them to go away. [In fact, unless we do the actual work and experience the suffering and unpleasantness, the things that (don't) (No.) quite work in our society will never go away. We just avoid them and pretend they (don't) (NO) exist.] (Thoughtful, but not very personal.)

Jane,

Your paragraph offers an explanation of the quotation that tells me you have an understanding of soma. You offer a thoughtful comparison of soma to money and begin to give a personal explanation. Try be more concise so that you get to your personal thoughts and reflection sooner and go more in depth.

A teacher has given students an assignment to write a paragraph. On the middle page, you will find the assignment instructions and a marked copy of the assignment. Consider how the assignment, the instructions and the feedback either are or are not autonomy supportive. If they are not, consider how they could be changed to be more autonomy-supportive.

Rather than ...	Instead...

Appendix C.

Ethics Approval

Notification of Approval

Date:	September 6, 2011
Study ID:	Pro00024857
Principal Investigator:	Lia Daniels
Study Title:	Pre-service teachers' responses to instruction in motivation interventions: Feasibility, usage, and preferences
Approval Expiry Date:	September 4, 2012

Thank you for submitting the above study to the Research Ethics Board 3. 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,

Dr. Wendy Rodgers

Chair, Research Ethics Board 3

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

Appendix D.

Letter of Information

UNIVERSITY OF ALBERTA

Students of EDPY 404 / EDPS 310:

When we talk to pre-service teachers one of their major concerns is how to motivate their students (Lauermann & Karabenick, 2011). Thus, as part of a research project titled *Motivation Interventions* led by Dr. Lia Daniels, you have the opportunity to receive instruction in motivational interventions geared to help your future students. The purpose of the current research is to examine your concerns and beliefs about motivating students as a pre-service teacher.

Over the fourteen-week period of the course, you will receive instruction in empirically validated motivation interventions for adolescents, which will include theory, information about the motivation intervention and how to use it, and some participation and practice time. These sessions will be led by graduate research assistants, Amanda Radil and Amanda Wagner and will focus on the following motivation theories: attribution theory, expectancy value theory, and self-determination theory. Interventions based on these theories deal with things like helping students make adaptive attributions in the face of failure (Berkeley, Mastropieri, & Scruggs, 2011), providing students with opportunities for autonomy or choice (Reeve, Jang, Carrell, Jeon, & Barch, 2004), and helping students see the utility value in their work (Hulleman & Harackiewicz, 2009), all of which consistently increase motivation and achievement for the students who receive them.

You will have the opportunity to share your reactions to these interventions including your apprehensions, implementation strategies, and personal preferences. You will be given a pre-questionnaire, a short response section to be completed after each of the intervention education sessions, and following the completion of all intervention instruction sessions, a post-training questionnaire. Each survey will take approximately 10-15 minutes to complete. Completion of the study materials is completely voluntary and will not impact your grade in this course in any way. If you choose to complete the surveys and/or other study materials, by providing responses, you are offering your implied consent that your confidential responses only be used for the purposes of this project. You can stop completing the materials at any time and with no penalty. There are no risks

associated with participating in this project, but as a benefit you will hopefully have a better understanding of student motivation and some new skills to take into your classrooms.

All paper materials will be kept in a locked filing cabinet and all electronic data contained on a password-protected computer. The paper copies of the data will be kept for five years and then destroyed. Dr. Daniels and trained graduate research assistants will be the only people with access to your confidential data. Individual participants will not be identified in any future presentations or publications.

If you have any questions or concerns about your rights as a participant or how this study is being conducted, you may contact the Research Ethics Office at 780-492-2615. This office has no affiliation with the study investigators.

Thank you in advance for your participation in this research project. If you have any additional questions about the research being conducted, please contact Dr. Lia Daniels at lia.daniels@ualberta.ca.

Lia Daniels, Ph.D.
Assistant Professor
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Amanda Wagner, Research Assistant
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Appendix E.

Pre and Post Intervention Survey

UNIVERSITY OF ALBERTA

This questionnaire asks you to think about your beliefs as an upcoming teacher and things that you might do with your students or classroom. There are ***no right or wrong answers*** *– we are simply trying to find out how you think and feel about various aspects of your teaching career and working with students. We are interested in your personal opinions, so please be honest in your responses. Your identity and your individual responses will be kept strictly* ***CONFIDENTIAL****. The information will be used for research ONLY and will not be available for any other purposes.*

The first part of this questionnaire consists of 92 items that you can answer on this sheet. Please stop at the appropriate stop to receive the intervention. When instructed, you can complete the remainder of the survey. Do not look back at your earlier responses. Your participation in this study is vital to its overall success. The time you have given to answer this questionnaire is very much appreciated.

Please note: Your student number will only be used to identify your answers on upcoming surveys so that we can match all your responses. If at any point after beginning the survey you decide you no longer wish to continue, you may do so by returning the survey materials to the researcher.

Lia M. Daniels, Ph.D.
Department of Educational Psychology

Amanda Radil
Amanda Wagner
Graduate Research Assistants

The following items ask you to think about how effectively you can teach all students. Please indicate the extent to which you agree with each item by circling the appropriate number.

		Strongly disagree		Somewhat agree		Strongly agree
1	I am certain that I am making a difference in the lives of my students.	1	2	3	4	5
2	I am good at helping all the students in my classes make significant improvement.	1	2	3	4	5
3	Some students are not going to make a lot of progress this year, no matter what I do.	1	2	3	4	5
4	There is little I can do to ensure that all my students make significant progress this year.	1	2	3	4	5
5	Factors beyond my control have a greater influence on my students' achievement than I do.	1	2	3	4	5
6	I can deal with almost any learning problem	1	2	3	4	5
7	If I try really hard, I can get through to even the most difficult student.	1	2	3	4	5

Imagine that you have classes of your own. To what extent would you feel <u>PERSONALLY</u> responsible that you should have prevented each of the following?

	I would feel <u>PERSONALLY</u> responsible if…"	Not at all						Completely
8	a student of mine was not interested in the subject I teach.	1	2	3	4	5	6	7
9	a student of mine did not think that he/she could trust me with his/her problems in or outside of school.	1	2	3	4	5	6	7

10	a student of mine had very low achievement.	1	2	3	4	5	6	7
11	a lesson I taught was not as effective for student learning as I could have possibly made it.	1	2	3	4	5	6	7
	I would feel <u>PERSONALLY</u> responsible if…"	Not at all						Completely
12	a student of mine disliked the subject I teach.	1	2	3	4	5	6	7
13	a student of mine failed to learn the required material.	1	2	3	4	5	6	7
14	a student of mine did not value learning the subject I teach.	1	2	3	4	5	6	7
15	a lesson I taught was not as engaging for students as I could possibly have made it.	1	2	3	4	5	6	7
16	a student of mine thought he/she could not count on me when he/she needed help.	1	2	3	4	5	6	7
17	a student of mine did not believe that I truly cared about him/her.	1	2	3	4	5	6	7
18	a student of mine failed to make excellent progress throughout the school year.	1	2	3	4	5	6	7
19	a student of mine failed my class.	1	2	3	4	5	6	7
20	a lesson I taught failed to reflect my highest ability as a teacher.	1	2	3	4	5	6	7
21	a student of mine did not care about the subject I teach.	1	2	3	4	5	6	7

Take a few minutes and describe characteristics of motivated high school students.

_____

_____

_____

_____

_____

_____

The following items are about what type of classroom you intend to establish once teaching. Please think about things you plan to do when you have your own classroom.

	"When I am a teacher I plan on…"	Strongly Disagree		Somewhat agree		Strongly Agree
22	giving special privileges to students who do the best work.	1	2	3	4	5
23	providing several different activities during class so that students can choose among them.	1	2	3	4	5
24	encouraging students to compete with each other.	1	2	3	4	5
25	giving a wide range of assignments, matched to students' needs and skill level.	1	2	3	4	5
26	pointing out those students who do well as a model for the other students.	1	2	3	4	5
27	making a special effort to recognize students' individual progress, even if they are below grade level.	1	2	3	4	5
28	helping students to understand how their performance compares to others.	1	2	3	4	5
29	considering how much	1	2	3	4	5

	students have improved when I give them report card grades.					
30	displaying the work of the highest achieving students as an example.	1	2	3	4	5

Next, there are several items that ask you to think about things you might do to try and increase your students' motivation. To what extent do you think the following statements are true in regards to improving student motivation?

	"Student motivation could be increased by…"	Not at all true	Not very true	Sort of true	Very true
31	Leading students through their schoolwork step by step.	1	2	3	4
32	Giving students only a few choices.	1	2	3	4
33	Explaining to students why we learn certain things in school.	1	2	3	4
34	Spending the majority of class time in teacher-led discussions.	1	2	3	4
35	When it comes to assignments, always telling students what to do	1	2	3	4
	"Student motivation could be increased by…"	Not at all true	Not very true	Sort of true	Very true
36	Encouraging students to think about how schoolwork can be useful to them.	1	2	3	4
37	Providing meaningful rationales for assignments, tasks, etc.	1	2	3	4
38	Giving students a lot of choices about classroom assignments.	1	2	3	4
39	Telling students every step to make when it comes to schoolwork.	1	2	3	4
40	Not letting students decide too many things about schoolwork for themselves.	1	2	3	4
41	It is difficult to explain to students why what we do in school is important.	1	2	3	4
42	Letting students make a lot of their own decisions regarding schoolwork.	1	2	3	4
43	Not letting students do things their own way.	1	2	3	4

44	Not giving students too many choices.	1	2	3	4
45	Focusing on the level of innate ability.	1	2	3	4
46	Encouraging students to put in more effort.	1	2	3	4
47	Reminding students that sometimes they are just unlucky.	1	2	3	4
48	Pointing out when a task/test is difficult (or really hard).	1	2	3	4
49	Focusing on meaningful aspects of learning activities.	1	2	3	4
50	Allowing students to plan time lines/deadlines.	1	2	3	4
51	Focusing on individual student progress.	1	2	3	4
52	Being honest with students about their level of competence.	1	2	3	4
53	Showing students how interested I am in the topic.	1	2	3	4
54	Designing novel tasks.	1	2	3	4
55	Making school work challenging.	1	2	3	4
56	Encouraging students to plan their own work schedules.	1	2	3	4
57	Setting high expectations.	1	2	3	4
58	Giving accurate feedback.	1	2	3	4
59	Encouraging students to be realistic about their potential.	1	2	3	4
60	Recognizing student effort.	1	2	3	4
61	Giving extensions on tasks when required.	1	2	3	4
62	Providing exemplars and demonstrating how to solve problems.	1	2	3	4
	"Student motivation could be increased by…"	Not at all true	Not very true	Sort of true	Very true
63	Offering rationales for work that provide information about the importance and the utility of the work.	1	2	3	4
64	Encouraging students to strive for higher levels of competence.	1	2	3	4
65	Providing opportunities for guaranteed success.	1	2	3	4
66	Making school work reasonable.	1	2	3	4

67	Getting students to mark each other's work.	1	2	3	4
68	Allowing students to control parts of their learning experience (e.g., choosing assignments, partners, deadlines, etc).	1	2	3	4
69	De-emphasizing competition among students.	1	2	3	4
70	Setting expectations that students are capable of meeting.	1	2	3	4
71	Designing interesting tasks.	1	2	3	4
72	Sharing individual performance with the whole class.	1	2	3	4
73	Modeling enthusiasm.	1	2	3	4
74	Providing incentives (e.g., tangible rewards, free time, etc).	1	2	3	4
75	Having students work in a jigsaw (become expert on one aspect of a topic and then share with another group of students who are each expert in another).	1	2	3	4
76	Keeping regular contact/communication with parents (e.g., signing agenda book).	1	2	3	4
77	Using competitive games (ex. Jeopardy)	1	2	3	4
78	Allowing students to work on projects of their own choice.	1	2	3	4
79	Using think-pair-share: Have students discuss topics with each other prior to large class discussions.	1	2	3	4
80	Establishing a "buddy system" with peers.	1	2	3	4
81	Changing classroom arrangements or routines (e.g., move desks around, work in pairs).	1	2	3	4
82	Giving marks for attendance.	1	2	3	4
83	Pairing students with someone from a different ability group.	1	2	3	4
84	Creating learning contracts with students.	1	2	3	4
85	Praising students for following directions	1	2	3	4

Please provide the following demographic information

86	Sex: Male Female (please circle)
87	Age: _____
88	Major: _____ Minor: _____ (if applicable)
89	Education Degree Program: _____ Secondary _____ Elementary
90	Prior degree? _____ If yes, in what? _____
91	Expected graduation date: _____
92	Practicum completed: _____ None _____ IPT only _____ IPT and APT

Take a few minutes and list the sort of things you do to motivate yourself as a student in the B.Ed. program.

_____

_____

_____

_____

_____

_____

STOP HERE

In light of the information you just received please answer the following questions again:

The following items are about what type of classroom you intend to establish once teaching. Please think about things you plan to do when you have your own classroom.

	"When I am a teacher I plan on…"	Strongly Disagree		Somewhat agree		Strongly Agree
1	giving special privileges to students who do the best work.	1	2	3	4	5
2	providing several different activities during class so that students can choose among them.	1	2	3	4	5
3	encouraging students to compete with each other.	1	2	3	4	5
4	giving a wide range of assignments, matched to students' needs and skill level.	1	2	3	4	5
5	pointing out those students who do well as a model for the other students.	1	2	3	4	5
6	making a special effort to recognize students' individual progress, even if they are below grade level.	1	2	3	4	5
7	helping students to understand how their performance compares to others.	1	2	3	4	5
8	considering how much students have improved when I give them report card grades.	1	2	3	4	5
9	displaying the work of the highest achieving students as an example.	1	2	3	4	5

Next, there are several items that ask you to think about things you might do to try and increase your students' motivation. To what extent do you think the following statements are true in regards to improving student motivation?

	"Student motivation could be increased by…"	Not at all true	Not very true	Sort of true	Very true
10	Leading students through their schoolwork step by step.	1	2	3	4
11	Giving students only a few	1	2	3	4

	choices.				
12	Explaining to students why we learn certain things in school.	1	2	3	4
13	Spending the majority of class time in teacher-led discussions.	1	2	3	4
14	When it comes to assignments, always telling students what to do	1	2	3	4
	"Student motivation could be increased by…"	Not at all true	Not very true	Sort of true	Very true
15	Encouraging students to think about how schoolwork can be useful to them.	1	2	3	4
16	Providing meaningful rationales for assignments, tasks, etc.	1	2	3	4
17	Giving students a lot of choices about classroom assignments.	1	2	3	4
18	Telling students every step to make when it comes to schoolwork.	1	2	3	4
19	Not letting students decide too many things about schoolwork for themselves.	1	2	3	4
20	It is difficult to explain to students why what we do in school is important.	1	2	3	4
21	Letting students make a lot of their own decisions regarding schoolwork.	1	2	3	4
22	Not letting students do things their own way.	1	2	3	4
23	Not giving students too many choices.	1	2	3	4
24	Focusing on the level of innate ability.	1	2	3	4
25	Encouraging students to put in more effort.	1	2	3	4
26	Reminding students that sometimes they are just unlucky.	1	2	3	4
27	Pointing out when a task/test is difficult (or really hard).	1	2	3	4
28	Focusing on meaningful aspects of learning activities.	1	2	3	4
29	Allowing students to plan time lines/deadlines.	1	2	3	4
30	Focusing on individual student progress.	1	2	3	4

31	Being honest with students about their level of competence.	1	2	3	4
32	Showing students how interested I am in the topic.	1	2	3	4
33	Designing novel tasks.	1	2	3	4
34	Making school work challenging.	1	2	3	4
35	Encouraging students to plan their own work schedules.	1	2	3	4
36	Setting high expectations.	1	2	3	4
37	Giving accurate feedback.	1	2	3	4
38	Encouraging students to be realistic about their potential.	1	2	3	4
39	Recognizing student effort.	1	2	3	4
40	Giving extensions on tasks when required.	1	2	3	4
41	Providing exemplars and demonstrating how to solve problems.	1	2	3	4
	"Student motivation could be increased by…"	Not at all true	Not very true	Sort of true	Very true
42	Offering rationales for work that provide information about the importance and the utility of the work.	1	2	3	4
43	Encouraging students to strive for higher levels of competence.	1	2	3	4
44	Providing opportunities for guaranteed success.	1	2	3	4
45	Making school work reasonable.	1	2	3	4
46	Getting students to mark each other's work.	1	2	3	4
47	Allowing students to control parts of their learning experience (e.g., choosing assignments, partners, deadlines, etc).	1	2	3	4
48	De-emphasizing competition among students.	1	2	3	4
49	Setting expectations that students are capable of meeting.	1	2	3	4
50	Designing interesting tasks.	1	2	3	4
51	Sharing individual performance with the whole class.	1	2	3	4
52	Modeling enthusiasm.	1	2	3	4
53	Providing incentives (e.g., tangible rewards, free time, etc).	1	2	3	4
54	Having students work in a jigsaw	1	2	3	4

	(become expert on one aspect of a topic and then share with another group of students who are each expert in another).				
55	Keeping regular contact/communication with parents (e.g., signing agenda book).	1	2	3	4
56	Using competitive games (ex. Jeopardy)	1	2	3	4
57	Allowing students to work on projects of their own choice.	1	2	3	4
58	Using think-pair-share: Have students discuss topics with each other prior to large class discussions.	1	2	3	4
59	Establishing a "buddy system" with peers.	1	2	3	4
60	Changing classroom arrangements or routines (e.g., move desks around, work in pairs).	1	2	3	4
61	Giving marks for attendance.	1	2	3	4
62	Pairing students with someone from a different ability group.	1	2	3	4
63	Creating learning contracts with students.	1	2	3	4
64	Praising students for following directions	1	2	3	4

Appendix F.

Handout for Control Group

5 Ways to Support Autonomy

Nurture inner motivation resources

- Identify and develop those already existing strengths
- Facilitate already existing strengths and help build capacity in other areas
- Consider:
  - Students' Interests
  - Students' Curiosity
  - Intrinsic Motivation

Provide explanatory rationales

- Especially important for uninteresting but important tasks
- Rationales – consider explaining:
  - The task's utility or use
  - The task's importance
  - Personal meaning behind the task
  - The value and hidden value of a task
- Focus on both present and future in rationale

Rely on non controlling, informational language

- Communicate with your students in ways that are:
  - Non-evaluative
  - Flexible
  - Informational
- Remember communication takes place in the classroom as well as on tests, assignments, through body language, etc.

Display patience to allow time for self-paced learning

- Remember that learning takes time and that each student moves at their own different pace
- Try not to give students the solutions or do all of the work for them
- Consider allowing students to:
  - Explore and manipulate tasks
  - Make their own plans and set their own goals
  - Monitor and revise their work
  - Use different problem solving strategies
  - Try different, self-discovered ways of doing tasks

Acknowledge and accept expressions of negative affect

- Understand that what you want a student to do and what they prefer and are inclined to do may be different
- Acknowledge and accept the feelings that students may express as a valid reaction to imposed task demands and structure
- Welcome students' thoughts, feelings and suggestions about your classroom and learning tasks

Above all else . . .

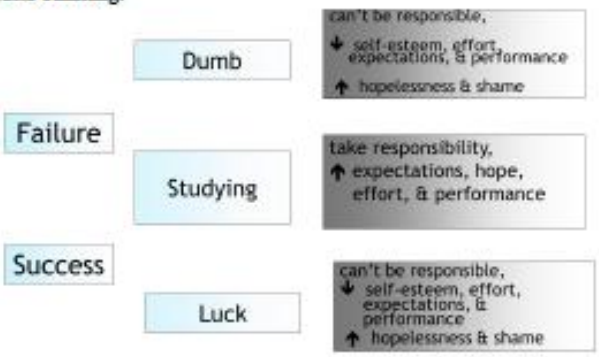
- **Take your students' perspectives**
- **Think about how to help them take charge of their educations through their own decisions and choices**

So here's the SCOOP on Attributional Retraining...

Attribution theory is concerned with the ways in which people EXPLAIN their behavior.
Attributions are **perceived** causes of outcomes, they may or may not be the actual causes. (The accuracy is not important)
Attributional Process:

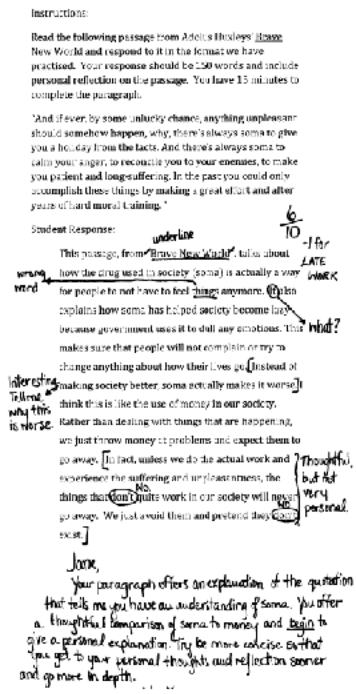
The goal of AR is to help students reframe the way they think about success and failure. As a teacher, you can embrace controllable factors (time spent studying, hours of sleep, time management) and internal causes (effort, ability) as legitimate causes of present and future academic performance.

Causal Thinking:



Remember, the set of behaviors/emotions you want your students to have are ones of taking responsibility, increasing hope and effort, and through effort, improving performance.

7 Minutes to Try It: Autonomy Support, Expectancy Value and Attributional Retraining



Instructions:

Read the following passage from Aldous Huxleys' Brave New World and respond to it in the format we have practised. Your response should be 150 words and include personal reflection on the passage. You have 15 minutes to complete the paragraph.

"And if ever, by some unlucky chance, anything unpleasant should somehow happen, why, there's always soma to give you a holiday from the facts. And there's always soma to calm your anger, to reconcile you to your enemies, to make you patient and long-suffering. In the past you could only accomplish these things by making a great effort and after years of hard moral training."

Student Response:

underline

6/10

-1 for LATE WORK

This passage, from "Brave New World", talks about how the drug used in society (soma) is actually a way for people to not have to feel things anymore. It also explains how soma has helped society become lazy because government uses it to dull any emotions. This makes sure that people will not complain or try to change anything about how their lives go. Instead of making society better, soma actually makes it worse. I think this is like the use of money in our society. Rather than dealing with things that are happening, we just throw money at problems and expect them to go away. In fact, unless we do the actual work and experience the suffering and unpleasantness, the things that don't quite work in our society will not go away. We just avoid them and pretend they don't exist.

wrong word

What?

Interesting. Tell me why this is worse.

Thoughtful, but not very personal.

No

Jane,

Your paragraph offers an explanation of the quotation that tells me you have an understanding of soma. You offer a thoughtful comparison of soma to money and begin to give a personal explanation. Try be more concise so that you get to your personal thoughts and reflection sooner and go more in depth.

A teacher has given students an assignment to write a paragraph. On the middle page, you will find the assignment instructions and a marked copy of the assignment. Consider how the assignment, the instructions and the feedback either are or are not autonomy supportive. If they are not, consider how they could be changed to be more autonomy-supportive.

Rather than …	Instead…

Didn't do as well on a test as you wanted?
Feeling frustrated, depressed, angry?

Here are some suggestions as to how you can change the way you *think* about negative

Rather than thinking…	Instead…
• I'm stupid.	• Everybody can succeed - you just have to work at it. Here are some examples as to how you can study more effectively: – read chapters several times – review notes several times -use your study guide -study with someone *Note: Counseling Services offers various study skills courses*
• The test was too difficult.	• Tests can appear difficult when you're not well enough prepared. Study more for the next test.
• My professor is lousy.	• If you are having problems with a professor, talk to him or her about your difficulties. If that doesn't help, you may have to work extra hard to do well in the course.
• I had a bad day.	• We all have bad days once in a while, but make sure that you study enough for the next test to improve your grade.
• I panicked.	• If you have a problem with text anxiety, try to relax under stress (see your psychology text for relaxation methods or check the Counseling Services for courses on stress management).

AAHE, Jan/96 H.O.

Not doing as well as you'd like in my class?
Feeling frustrated or angry? Feel like you're just scraping by or running out of luck?
Here's some suggestions as to how you can change the way you *think* about negative experiences in your life.

Rather than thinking…	Instead…
1.	
2.	
3.	

The next time you don't do as well as you'd like, remember that most reasons for doing poorly are under your control and can be changed