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The design of pre-service inclusive education courses and their effects on Self-Efficacy: A comparative study

Julie Lancaster

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Julie Lancaster is a lecturer in the School of Teacher Education at Charles Sturt University. Her research focusses on inclusive education in higher education settings.

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Alan Bain is an associate professor in the School of Teacher Education at Charles Sturt University. His research focuses on school reform and the design of inclusive schools.
The design of pre-service inclusive education courses and their effects on Self-Efficacy: 

A comparative study

This study compared two versions of a 13-week mandatory undergraduate inclusive education course to determine their effects on the self-efficacy of pre-service elementary education teachers. For the purposes of the research, the self-efficacy construct was applied specifically to working with students who have inclusive educational needs. The study sought to determine whether there were differential effects of the two approaches, one based on a field-based placement and the other employing a course design approach derived from complex adaptive systems. The results showed statistically significant gains in self-efficacy for both approaches, although there were no statistically significant differences between versions of the course. The implications of the findings are discussed for the design of mandatory inclusive education courses.

INTRODUCTION

Australian and international special education policy requires that students with special needs receive their education in mainstream classes in inclusive schools. As a result, all teachers, including new graduates, are required to teach students who may vary widely in aptitude, learning history, and achievement. Teacher skills, attitudes and curriculum responsiveness to learner diversity are increasingly viewed as key benchmarks of effectiveness in inclusive classroom settings (Ashman & Elkins, 2009; Berends, Bodilly, & Nataraj Kirby, 2002).

With the advent of increasing inclusion of students with disabilities in general education classes, it has become essential to create pathways for pre-service teachers to develop skills to teach more diverse groups of students. Many pre-service teacher education students (PSTEs) have only a limited exposure to the field of inclusive education through participation in a mandatory course included in their teacher training program (Carroll, Forlin,
Jobling, 2003; Purdue, Gordon-Burns, Gunn, Madden, & Surtees, 2009). A number of studies have shown that participation in a pre-service preparation course positively influences the attitudes and self-efficacy of PSTEs as they relate to working with children who have a variety of educational needs (Burton & Pac, 2009; Carroll et al., 2003; Lambe, 2007; Palmer, 2006). Despite these positive effects, mandatory inclusive education courses have been subject to criticism for an overemphasis on knowledge acquisition instead of equipping prospective teachers with practical skills for teaching a diverse range of students (Boe, Sujie, & Cook, 2007; Carroll et al., 2003; Hoy & Spero, 2005). This criticism reflects broader international concern about whether the preparation teachers receive for inclusion is adequate (Chang, Early, & Winton, 2005; Edelen-Smith, Prater, & Siloe, 1993; Forlin, Loreman, Sharma, & Earle, 2009; Jung, 2007; Pugach & Blanton, 2009; Reed & Monda-Amaya, 1995; Sharma, Forlin, & Loreman, 2008). The proposed mismatch between preservice preparation and the actual working conditions of teachers has been identified as a major reason for high levels of attrition in inclusive education (McLeskey & Billingsley, 2008; Whitaker, 2000).

The limited exposure to inclusive education experienced by PSTEs and the gap between preparation and practice for inclusion has created a driver for the examination of approaches taken to the design of mandatory inclusive education courses. The design focus is necessary in order to develop courses that are maximally responsive to the demands graduates will face in inclusive classrooms. A central question in the design of mandatory courses pertains to the role played by a practical site-based experience in working with students who have special needs.

In a survey of 2,375 PSTEs, Forlin, Tait, Carroll, and Jobling (1999) found that more frequent contact with people with disabilities resulted in less discomfort during their interactions. Hopper and Stogre (2004) concurred when they compared attitudes of PSTEs who participated in site-based programs including students who have special needs to settings...
where the students with special needs were not included. The comparison yielded statistically significant differences between the groups with site-based programs resulting in more positive attitudes towards students with disabilities.

In a previous study (Lancaster & Bain, 2007) reported that there are also exceptions to this trend. For example, Marshall, Stojanovik, and Ralph (2002) found no significant relationship between PSTEs’ previous experience and their attitudes towards students who have special education needs. Alghazo, Dodeen, and Algaryouti (2003) also found that the amount of contact did not impact on attitudes of pre-service teachers. In fact, the results indicated overall attitudes towards teaching students with disabilities were negative. As these studies indicate that no causal link can be made between the amount of exposure to students with disabilities and the attitudes towards teaching these same students, perhaps attitudes are impacted by other factors such as the type of training received by PSTEs. The amount of exposure to students with disabilities during preservice training does not necessarily correlate to more positive attitudes amongst PSTEs.

In 2007, Lancaster and Bain sought to extend the work on attitudes of PSTEs by examining the theoretically derived and more psychometrically tested construct of self-efficacy. Self-efficacy is a personal belief about one’s ability to perform an action and is directly related to a sense of competence and confidence about performance in a given domain (Bandura, 1997; Pajares, 1992, 2003). Self-efficacy for teaching is facilitated by mastery experiences, physiological and emotional cues, vicarious experiences, and verbal persuasion (Bandura, 1997) some or all of which can be represented in pre-service teacher training experiences. Direct mastery experiences are considered to be one of the most effective self-efficacy builders (Morell & Carroll, 2003) and as such, measures of self-efficacy should be sensitive to the presence and effects of mastery related experiences when
they occur in PSTE courses and the PSTEs attitudes and self-efficacy towards students with disabilities.

The initial study by Lancaster and Bain (2007) compared the growth in the self-efficacy of PSTEs under three different course design conditions. Two conditions involved the engagement of PSTEs in a direct experience with students who have special learning needs and the other was a university “classroom only” condition. The first direct experience condition involved working in a formal mentoring program (Bernard, 2002) where PSTEs spent two hours a week in a secondary school setting working with tutees on study goals, action planning and social skills. The second direct experience condition involved participation in one to two hours per week of inclusive classroom support scheduled throughout weeks 7-13 of the course. The subject only condition was a full 13-week university-based course that did not include any form of direct experience. All three conditions consisted of a common core of lectures and tutorials; the students in the campus-based condition received an additional six weeks of lectures and tutorials in a range of topics related to inclusive education including early intervention, literacy and numeracy. In place of the direct experience condition, these students were required to prepare group presentations that translated the lecture and tutorial content into practice. **Ethical approval for this research was granted by the University Ethics Committee, and informed consent was given by participants.**

The study findings showed statistically significant gains in self-efficacy for all three groups and supported existing research that indicates a course experience in inclusion exerts a positive impact on PSTEs assessment of their own confidence and capabilities (self-efficacy) in being able to teach students with special needs (Carroll et al., 2003). However, there were no statistically significant differences between the three quite distinct approaches described in the study reinforcing conjecture about the contribution of a direct experience to a pre-service preparation.
course and the influence of other educational design factors. This outcome created a rationale and need for the study that is described here.

The study to be discussed here sought to extend the original research through a more focused comparison between a classroom only condition using a specific educational design approach and the combination of a classroom condition with an additional direct applied experience in an inclusive setting. In the present study, we sought to exercise more control over the course design, content and implementation in both conditions than was the case in previous work in order to establish any differential effects of the approaches on self-efficacy. This control included monitoring the integrity of implementation and matching participants in each condition to their pre-test scores on a self-efficacy measure as a covariate to address any differences in the groups of PSTEs prior to participation.

*Embedded Design*

Our specific goal in this study was to determine any differences in self-efficacy between the direct experience condition and an instructional design approach that employs principles derived from the work on a theory of self-organizing schools (A. Bain, 2007). That theory, and the research that supports it, focuses on the way in which a system’s design can enable a deeper engagement with the content and skills of inclusive practice through the process of ‘*embedded design*’.

*Embedded design* involves creating self-repeating patterns in a system by expressing their essential features at many levels in the system’s design. For example, if a system assigns value to collaboration as a key concept then it is important that collaboration becomes deeply embedded in the schema for the system.

According to the theory of self-organising systems, successful complex systems exhibit self-repeating patterns within their organizational structure (Waldrop, 1993). As such, embedding collaboration or any other practice generates a deeper and elaborated
understanding of, and facility with, the role of collaboration in inclusive practice. When this principle of embedded design is extended to all features of the course, the principle has the potential to create the kind of mastery experiences that have been shown to influence self-efficacy (Bandura, 1997). In the present study we hypothesized that the application of the embedded design principle to the course would result in self-efficacy gains as PSTEs built mastery level skills in inclusive practice. Previous studies have shown that the application of the *embedded design* principle covaried with increases in other skills related to inclusive practices such as the use of professional pattern language (Bain, Lancaster, & Zundans, 2009) and pedagogical content knowledge (Bain, Lancaster, Parkes, & Zundans, 2009) of PSTEs.

**METHOD**

The research questions addressed in the study were as follows:

- Does participation in an inclusive education course covary with improved perceptions of self-efficacy?
- Are perceptions of self-efficacy differentially affected by the type of course design experienced by PSTEs?
- Does participation in an applied field experience result in higher levels of self-efficacy when compared to a mastery-based experience, built upon the application of the embedded design principle?

**Participants**

A total of 36 pre-service teacher educators participated in this study. Of the total, 30 were female and 6 were male. The participants comprised students enrolled in the second year of the Bachelor’s Degree in Primary (Elementary) Education at an Australian regional university. The students were enrolled at two campuses (described here as Campus A and Campus B), located in regional Australian cities 200km apart.
Setting

The sessions of the course were held in the lecture theatres and tutorial rooms on each campus. Lectures were of one hour and included all students while tutorial sessions were of two hours and included approximately 20 students. Students attending Campus B also conducted visits and teaching sessions in two community-based after-school programs. The sessions were of one-hour duration and were undertaken for 11 weeks beginning in the third week of the semester.

Independent Variable

The design of Inclusive Education course entitled EED212 served as the independent variable in this study. EED212 is a mandatory inclusive education course completed in the second year of a primary (elementary) degree program. The course is of 13 weeks duration with a total contact time of 39 hours. Students in the applied experience condition (Campus B) engaged in an additional 11 hours of site experience, one hour per week from weeks 3-13 bringing the total time commitment to 50 hours.

Levels

The type of course design in which the students participated distinguished the two levels of the independent variable. They were embedded design (A. Bain, 2007) and applied direct experience.

Embedded Design

The embedded design principle was applied to the course design and implementation at four levels. They were:

Level I: Knowledge and Awareness
All students were required to complete pre-reading on collaboration, explicit teaching, cognitive strategy training, cooperative and peer assisted learning, in preparation for lectures. Lectures were then used to develop and apply the concepts and ideas described in the readings. Students at Campus A attended 7 lectures over the 13 week period. The readings and lectures were interwoven by a set of specific objectives which were provided to students on the week prior to the introduction of a new topic. The objectives explained the key understandings for each topic and how related information would be provided either by readings, by lecture or both. PSTEs were accountable for developing responses to each of the objectives for each week. Quiz questions were also utilised as an assessment item and were based upon the objectives.

**Level II: Active experience**

At this level of course design, workshops were used to translate knowledge and awareness into skill in a series of practical experiences. Students participated in five two-hour skill-building workshops which were conducted in collaboration, explicit teaching, cognitive strategy training, cooperative learning and peer-assisted learning. Students were taught how to build lesson designs using each of the approaches and then differentiate those designs for an inclusive classroom. In each case the teaching approach that constituted the topic of the workshop was employed to teach the workshop. For example; students learned about cooperative learning by using cooperative learning as the medium of instruction in the workshop (i.e. Jigsaw II - (Slavin, Farnish, Livingston, Sauer, & Colton, 1994). The same approach was applied to the design and implementation of workshops on explicit teaching, peer assisted learning and cognitive strategy training.

**Level III: Continuous application and feedback**

The *embedded design* principle calls for the embedding of key strategy elements in all other aspects of the course (A. Bain, 2007). This embedding was accomplished in the course
design and implementation by using the collaborative process in all workshops as a medium for learning about other approaches. In the first workshop meeting (week two) students were randomly placed in collaborative groups for the duration of the course and learned a collaborative problem-solving process together practicing it first with simple problems such as ‘naming their community’ (Friend & Cook, 2003; West, Idol, & Cannon, 1989). The application progressed to more sophisticated instructional problem-solving related to the lesson designs.

PSTEs convened their communities as a part of the teaching cycle for each inclusive approach in order to share their lesson designs. PSTEs shared copies of their designs with their peers and after reading the design, the community group used the collaborative process to provide feedback on each lesson. This process embedded collaboration in the learning about all other practices and called upon PSTEs to make active use of their knowledge of the pattern language of explicit teaching, cognitive strategy training, cooperative learning, and peer assisted learning by deploying their knowledge of those practices in the feedback exchange.

Level IV: Personal impact

At the personal impact level, embedded design has a direct, “non-simulated” effect on the student’s engagement with the course. PSTEs use the inclusive practices in ways that have consequences for their performance in the course; for example, using the inclusive practices taught from week to week as part of the PSTE’s preparation for their assessment tasks. In the present study this happened in two ways. Firstly PSTEs used collaborative, peer assisted and cooperative learning in preparation sessions to prepare for the quizzes to be taken as part of their assessment. For twenty minutes prior to the administration of the quizzes the students used the respective processes to prepare for their quizzes. As such, their capacity to employ the research-based characteristics of the inclusive approaches influenced
the quality of their preparation and ultimately their quiz grade (Bain, Lancaster, Parkes et al., 2009). In this way the embedding was intended to result in a more visceral or direct level of impact where students could experience, authentically, the effect of the approaches on their own learning and performance. Secondly, the student lesson designs described in the previous section were also graded as an assessment requirement. The quality of the collaborative feedback each student received from their collaborative group influenced the quality of their revisions that in turn influenced the grade they received. The personal impact level of embedding occurred on three occasions for quiz preparation and on four occasions for lesson feedback in the course schedule.

Teaching Cycle (Campus A)

The four levels of embedding were implemented sequentially for each topic and framed the week-to-week teaching cycle for the course. The cycle included pre-reading, lecture, skill building workshops, lesson draft development, collaborative feedback, lesson submission and quiz. Each level of embedding focused on reinforcing the learning experience acquired at other levels. For example, the approaches to collaboration (Slavin et al., 1994) used in quiz preparation were the same approaches that students read about and were described in the lectures. The collaborative process used in class to review lesson designs was the same process introduced in the active experience workshop. In this way each level of embedding was designed to have a self-reinforcing effect on the other as student’s learning experience at one level was reinforced at another (Lancaster & Bain, 2007). Students engaged in a procedurally consistent and self-reinforcing approach focused first on building knowledge level capacity with new pedagogical knowledge, then the elaboration of that understanding through exchange with their peers and finally the application of that knowledge in lesson designs.
The collaborative communities of practice were the vehicles employed by groups of students to express the four levels of embedded design included in each teaching cycle. The exchange in those communities reflected the knowledge of the inclusive pedagogies (Level I), the application of learning derived from workshops (Level II), the venue for the use of collaborative process to provide feedback (Level III) and for test preparation (Level IV). At all levels, the communities provided both the context and opportunity for students to share and elaborate upon the knowledge and skill developed throughout the course. The elementary education degree students attending Campus A undertook the embedded design condition with no applied experience.

Applies Experience

The students attending Campus B undertook the inclusive applied experience approach. In this format, the common core of lectures and tutorials of EED212 was followed by the PSTEs. The students at Campus B experienced the same Level I embedding undertaken by students at Campus A. This included the same specific learning objectives, pre-reading on collaboration, explicit teaching, cognitive strategy training, cooperative learning, lecture and assessment requirements. In tutorial sessions these PSTEs also developed lesson designs although without the approach described above in Levels II–IV above for campus A. Each week during tutorial times PSTEs on campus B would develop lesson plans and assessments for use at their practical experience site. This included developing running records for reading fluency and accuracy, use of the South Australian Spelling Scheme, and the Macquarie University MUSEC phonemic awareness tests. Examples of the cognitive strategies included: SQ3R, phonological and morphological awareness and spelling strategies such as ‘look, cover, write and check’. The use of these strategies at campus B was modeled by the lecturer in workshop sessions. PSTEs received instruction on how to develop the
lessons and informal feedback from peers but without the use of the embedded design approach where the practice being taught was used to teach the workshop.

Instead of the additional levels of embedded design described previously, the PSTEs in the applied experience condition participated in a classroom support activity scheduled throughout weeks 3-13 of the semester. The sessions were undertaken at two neighborhood community service agencies with after school programs that catered for students with special needs (for example, students with documented learning problems and Asperger's Syndrome). PSTEs worked one-on-one or with small groups of students using the lessons and assessments developed in the course workshops to teach literacy and numeracy skills. This included guided reading, small group activities and one-to-one guided practice with literacy skills. The lecturer from Campus B monitored site visits and provided PSTEs with feedback on their work with students at the practical experience site.

**Teaching Cycle (Campus B)**

In this format, the common core of the course was followed by a series of additional lectures and tutorials on communication, transition, literacy and numeracy difficulties, social and emotional associated difficulties and assistive technology. The students on Campus B then participated in an additional 1 hour per week inclusive classroom support experience scheduled throughout weeks 3-13.

**Implementation Integrity**

A subject implementation fidelity checklist was employed weekly in both conditions. The checklist included a detailed account of the critical events in the course across three areas:

*Content Requirements* - This involved making a determination about whether the week to week content was addressed including the learner expectations, readings and lecture content.
Scheduling Requirements - This involved an evaluation of whether the stated weekly schedule of events was followed.

Teaching Cycle Requirements - This included making a determination of whether the cycle of events within each class session was followed.

Each instructor assigned one of three levels of agreement to the items on the implementation checklist. They were: Strong agreement (all aspects of the item were achieved), moderate agreement (some of the aspects addressed in the item were achieved) weak agreement (little of the item was covered). A score was assigned to each level of agreement (3-1) and used to calculate percent implementation integrity.

Instructor variables

The variations in the way the treatment condition (the independent variable) was implemented can inflate error variance and may decrease the chance of obtaining true differences (Burns, 2000; Fraenkel & Wallen, 2006). Within the context of this study, internal validity may have been threatened by groups being exposed to different teachers. Two tutorial groups at Campus A were conducted by the researcher, two further tutorials were conducted by a colleague and lectures were shared between three colleagues. The lectures and tutorials on campus B were conducted by another colleague. The implication here is that consideration needs to be made of the way the subject may be taught by different personnel. This was considered a threat in this research and was reduced by trying to standardise the treatment across tutorial groups in campus A. Campus B was not utilising embedded design in delivery (rather an applied experience design) of the course so close attention was required to report exactly the way the course was delivered on each campus. All staff involved in this research have degrees in Special Education at Masters level or above and all have over twenty years experience in the field working with students who have
special needs.

Dependent Measure

The Self Efficacy toward Future Interactions with People with Disabilities Scale (SEIPD) (Hickson, 1995) was employed in the study. The scale is comprised of 15 items in three areas: willingness to initiate behavior, willingness to expend effort in completing behavior and persistence in the face of adversity (Hickson, 1995). The SEIPD employs a Likert 8-point scale ranging from definitely false to definitely true with no midpoint as a format for responding. For example “I am able to plan and organize appropriate activities for my students” (Hickson, 1995, p.111).

The reliability of the SEIPD was determined using test-retest and alpha coefficients employing a sample of 180 teachers and nurses. A mean alpha co-efficient of .87 was reported for the SEIPD, while test retest reliability produced a reliability coefficient of .8 over a 4 week interval and .68 over a six week interval (Hickson, 1995). Factorial validity was established using Principal component analysis. Both orthogonal and oblique rotations gave identical results with only one factor extracted, indicating that items within the scale were measuring the same construct and accounting for an average of 55.1% of the variance (Hickson, 1995). Statistically significant correlations (.32) were found between the SEIPD and the Scale of Attitudes Toward Disabled Persons (Antonak, 1979, cited in Hickson, 1995) and the Attitudes Toward People with Disabilities Scale (.50) Yuker, Block and Young, 1970, cited in Hickson, 1995 ) confirming the mediating relationship of attitude on self-efficacy.

RESULTS

Implementation Integrity

A descriptive statistical analysis of the checklists completed by the instructors in each condition yielded a 98% agreement between the expected and actual activities for the
emerged design condition and a 93\% agreement for the applied experience condition. Both instructors reported that the key features of the conditions and content requirements were implemented with high levels of integrity.

**Self-Efficacy**

A one way Analysis of Variance was employed using the pre-test score on the SEIPD as a covariate to confirm the outcome of the matching process and identify any differences on the dependent measure associated with the PSTEs programs or campus attended. This was deemed essential given that these students could not be assigned randomly to the two conditions. No statistically significant differences were found across the groups (Campus A, Campus B, (F1, 34) =1.56 p= .96) on the SEIPD.

A repeated measures ANOVA revealed statistically significant differences for occasion (pre to post) (F1, 34) = 36.33 p<.0001). Table 1 describes the mean and standard deviation scores for each group from pre to post testing occasion. There were no statistically significant differences for condition on the posttest scores (F1, 34) = .533 p=.47).

The scores under both conditions increased from pre to post test indicating that self-efficacy levels improved irrespective of treatment condition.

The gains in self-efficacy were 14.61 for the embedded design condition and 12.33 for the applied experience condition. In practical terms these gains indicate that PSTEs felt less confronted and concerned about their ability to teach students with a disability, are more confident, motivated and capable of adapting practices to suit individual needs. There was no statistically significant interaction with the effects of all levels of the independent variable remaining consistent from pre to posttest occasion. Table 1 also indicates that standard deviation scores decreased substantially from pre to post test in both conditions. Overall, the results indicate that participation in an inclusive education course did covary with stronger beliefs about self-
efficacy among students in both conditions. However, those beliefs were not affected to a statistically significant level by participation in a field based experience as part of the program.

**DISCUSSION**

The findings of this self-efficacy study reinforce previous findings for teacher attitude and self-efficacy that showed overall positive effects associated with pre-service applied experiences (Forlin & Fogarty, 1999; Hopper & Stogre, 2004; Lancaster & Bain, 2007). The present study showed a consistent overall positive increase in self-efficacy that covaried with participation in both iterations of a PSTE inclusive education course. As such, the *embedded design* and *applied experience* conditions described here can each be viewed as potential sources of increased self-efficacy as described by Bandura (1997) while also creating a context for the exposition of self-efficacy mediating variables such as attitude, task engagement and feedback (Lancaster, 2005; Linnenbrink & Pintrich, 2003; Margolis & McCabe, 2004).

As was the case in our prior study (Lancaster & Bain, 2007), the inclusion of an applied experience in the course did not necessarily covary with greater gains in self-efficacy. In this present study, the greatest gain was made by the group using the embedded design approach whose course did not include an applied experience, although the differences were not statistically significant.

Based on literature described earlier, it was concluded that the effects of having an *applied experience* cannot be assumed as a sole source of self-efficacy and this conclusion is reinforced by the findings described here. Previously it was posited that variability in the structure of the applied experience condition may have adversely influenced self-efficacy effects. In the present study, PSTEs were engaged in a more planned and supportive approach having time to build lessons and receive feedback from their instructor. The *applied*
Self-efficacy condition in this present study included an additional 11 hours of engaged time working with students, yet this did not translate into gains in self-efficacy that exceeded those reported for the embedded design condition.

The present study would suggest that a more detailed understanding of the nature and effects of all aspects of mandatory inclusive education courses is necessary in order to establish their effects on self-efficacy. The results are indicative of the need for a careful examination of the connections between class coursework and the design of an applied experience. This examination could involve a combination of the embedded design and applied experience approaches described in this study in order to maximize the potential benefits of both. This work could then focus on the extent to which those experiences are mastery-base and the ways in which these experiences connect to the future in-service role of PSTEs.

LIMITATIONS AND CONCLUSIONS

It is often the case that the independent variable under investigation may be confounded by extraneous variables, which make it difficult to determine the unique effect of each. Randomisation of treatments or participants is the best single way to control for many extraneous variables; however, as noted earlier, it is not always possible (Burns, 2000; Lankshear & Knobel, 2004; Shaughnessy, Zechmeister, & Zechmeister, 2009). In spite of the lack of statistically significant differences across the two groups on the SEIPD prior to participation in the inclusive education courses described here, it is important to acknowledge that participants were not randomly assigned to conditions and as such the design could not control for the many factors that could have influenced the outcomes during the 13 weeks of the study. The matching of participants and monitoring of implementation integrity were undertaken to address this issue although these efforts cannot be seen as comprehensive in relation to the many possible validity threats.
In conclusion, the findings that courses can improve the self-efficacy of PSTEs are encouraging, especially given the importance of self-efficacy regarding its powerful influence on teacher effectiveness.

The findings of this study also draw attention to the design issues associated with pre-service teacher education courses in inclusive education. The applied experience component calls for future research which needs to explore more deeply the role and design of applied experiences in PSTE courses if they are to contribute maximally to the growth of pre-service teachers. The theoretical drivers behind course design also calls for more thorough analysis in terms of the many variables that impact preservice teacher educators.
Table 1 Mean and Standard deviation Scores by Condition

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