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**Abstract** This study examines whether participation in a 13-week undergraduate inclusive education course co varied with an improvement in the self-efficacy of preservice elementary education teachers. We sought to determine whether self-efficacy was influenced differentially by the type of field-based placement experienced by students in the course. The results showed that an improvement in student self-efficacy co-varied with participation in the inclusive education course, although the field-based placement did not differentially affect self-efficacy at a statistically significant level.

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# Introduction

For many preservice teacher education students, their only exposure to the field of inclusive or special education is participation in a mandatory introductory course included in their regular education programmes (Carroll, Forlin, & Jobling, 2003; McRea, 1996; Ministerial Advisory Council on Quality Teaching, 1997). Despite the widespread support for teacher preparation in inclusive education, there is also international concern about whether the preparation teachers receive for inclusion is adequate (Edelen-Smith, Prater, & Siloe, 1993; Lombard, Miller, & Hazelkorn, 1998; Reed & Monda-Amaya, 1995).

For example, one of the major reasons for high levels of teacher attrition in special education is the perceived mismatch between preservice preparation and the actual working conditions of special education teachers (Whittaker, 2000, 2001). Carroll et al. (2003) suggested that the design of preservice preparation programmes frequently overemphasises knowledge acquisition to the detriment of equipping teachers with practical skills for teaching a diverse range of students, including exposure to field-based programmes and students with disabilities. The composition of these courses and their impact on future practice is particularly important given the widespread support for inclusion and the challenges associated with meeting the needs of an increasingly heterogeneous student population in inclusive instructional settings (Billingsley, Carlson, & Klein, 2004; Fore, Martin, & Bender, 2002).

## Preservice Teacher Attitudes

A number of studies have shown that attitudes of preservice educators toward teaching students with special needs are generally positive (Carnell & Tillery, 2005; Richards & Clough, 2004). Further, those attitudes seem to be positively influenced by preservice preparation (Carroll et al., 2003; Shade & Stewart, 2001). For example, Carroll et al. found that participation in a 10-week mandatory course in special education positively impacted discomfort levels, sympathy, uncertainty, fear, coping, and vulnerability. Shade and Stewart made a similar finding after a 30 h course that consisted of brief lectures, audiovisual presentations, small-group discussions, role-play, and empathy-building exercises.

Most studies also report a positive effect on preservice teacher attitudes associated with a field-based experience in preservice preparation. Richards and Clough (2004) investigated whether school experiences had affected original understandings and views on inclusion of 120 preservice teachers. The results indicated that few of the preservice teachers had any prior experience of people with disabilities, and found the greatest benefits in terms of teacher preparation were obtained in their practical school experiences. These authors concluded that teacher education programmes need to enable greater exposure to individuals with disability in order to challenge preservice teachers' views on learners with disability. Forlin, Tait, Carroll, and Jobling (1999) surveyed 2,375 preservice teachers about their attitudes towards people with disabilities by assessing levels of discomfort in social interactions. They found that more frequent contact with people with disabilities resulted in less discomfort in interactions. Hopper and Stogre (2004) compared attitudes of preservice teachers who participated in site-based programmes for students who have special needs with

those who did not. The comparison between those in site-based classes and those in non-site-based classes yielded statistically significant differences between the groups, with site-based programmes yielding more positive findings for attitudes, social influence, and perceptions of control.

It is important to note that there are also exceptions to this trend. For example, Marshall, Stojanovik, and Ralph (2002) conducted a study involving the attitudes of preservice teachers toward students who had specific speech and language difficulties. Unlike the results of the studies described above, these researchers found no significant relationship between preservice teachers' previous experience with students who have difficulties and their attitudes. They did note differences in attitude based on availability of resources (both workload and knowledge based) and the types of disability that the students might have. Alghazo, Dodeen, and Algaryouti (2003) conducted a study across three universities and also noted that the amount of contact did not impact on attitudes of preservice teachers involved in this study. In fact, the results indicated overall attitudes towards students with disabilities were negative. These findings indicate that attitudes can be dependent on the type of training and exposure to disabilities received by the preservice teachers, and it cannot be assumed that an acceptance of inclusive ideals is in any way universally predicted by, or highly correlated with, contact or exposure during training.

## **Self-efficacy and Attitude**

The present study seeks to extend the work on attitude and preservice teacher preparation, by examining the effect of preservice preparation in inclusion and special education on the related construct of self-efficacy, and specifically toward preservice student's future interactions with people who have a disability. Self-efficacy is a personal belief about one's capability of performing an action and is directly related to one's sense of competence and confidence about performance in a given domain (Bandura, 1997; Hardre, 2003; Pajares, 2003). While the construct of self-efficacy has been applied in a number of studies involving preservice educators—including preservice teacher instructional behaviour (Britten & Lai, 1998); content, pedagogy, and classroom management (Liu, 2004); the use of technology as a teaching tool (Alden, 2002; Plotnick, 2004; Wang, Ertmer, & Newby, 2004); science teaching (Cunningham, 1989; Morell & Carroll, 2003); physical education (Hopper & Stogre, 2004); library database searching (Beile & Boote, 2002); and ability to use a variety of instructional strategies—there are no studies to date that have focused on the self-efficacy of preservice teachers concerning their future work with students who have special needs.

Self-efficacy for teaching is determined by mastery experiences, physiological and emotional cues, vicarious experiences, and verbal persuasion (Bandura, 1997), some or all of which can be represented in preservice teacher training experiences. Direct mastery experiences are considered one of the most effective (Morell & Carroll, 2003), although all contribute to perceptions of self-efficacy (Schunk, 2004), indicating the potential positive impact associated with providing direct experience with students who have special needs in a preservice course.

Self-efficacy is impacted by *mediating variables* (Linnenbrink & Pintrich, 2003; Margolis & McCabe, 2003) that include personal attitudes and attributions; prior experiences of success or failure; task engagement such as goal setting; situational factors such as rewards, feedback received, and modelling from peers; and strategies that are used to teach content (Schunk, 2004). Given the mediating effect of attitude and experience on self-efficacy, and the reports

of generally positive effects associated with an experiential component in preservice courses, there is reason to believe that an applied experience, when part of a teacher preparation course, could influence the confidence of preservice educators and their beliefs about their perceived competence in working with individuals who have special needs.

The concern about the nature of preservice teacher preparation for inclusion, and the generally positive findings relating to the effect of experience on attitude, provides a rationale for the specific investigation of teachers' sense of self-efficacy as it relates to students with special needs and catering for individual difference. This is particularly the case with regard to the identification of any differential effects associated with the type of efficacy-building experiences that are included in preservice preparation. Information about the nature of such experiences could assist course developers identify experiences that are efficacious for inclusion in preservice preparation. The present study seeks to extend the attitudinal research of Carroll et al. (2003) by examining the effects of teacher preparation on preservice student's sense of self-efficacy about teaching students with special educational needs in inclusive settings.

## **Purpose**

Specifically, the purpose of this study was to investigate the effect of an inclusive education course on the self-efficacy of preservice elementary educators. Further, the study sought to establish whether changes in self-efficacy co-varied with the type of field-based experience included in the course. The research questions addressed in the study were as follows:

- Does participation in an inclusive education course co-vary with improved perceptions of self-efficacy in teaching students with special needs?
- Are perceptions of self-efficacy in teaching students with special needs differentially affected by the type of field-based experience included in a teacher preparation course?

## **Method**

### **Participants**

A total of 125 preservice teacher educators participated in this study. Of the total, 30 were male and 95 were female. Ages of participants ranged from 19 to 35 years with a mean age of 22.8. One hundred and twenty-one of the participants had no previous experience with students with a disability. Two had contact through a family member and two had engaged in part-time work working with adults with a disability. The participants comprised the total population of students enrolled in the second year of the Bachelor's Degree in Primary (Elementary) Education and the Bachelor's Degree in Early Childhood Education at an Australian regional university. Seventy-seven participants were in an elementary education programme while the remaining 48 were in an early childhood programme. The students were enrolled at two campuses (Campus A and Campus B), located in regional Australian cities 200 km apart.

### **Setting**

The sessions of the 13-week course were held in the lecture theatres and tutorial rooms on each campus. The mentoring and subject-only groups were situated at Campus A, while the

inclusive classroom-support group was situated at Campus B. Lectures were of 1 h and included all students, while tutorial sessions were of 2 h and included approximately 20 students.

## **Independent variable**

The inclusive education subject taken by all participants in the study served as the independent variable in this study. This subject is a mandatory subject completed in the second year of the primary and early childhood degree programmes. The subject is of 13 weeks duration, with a total contact time of 39 h. The first 7 weeks of the programme were common to all groups and involved lecture and tutorial content in the history of inclusive ideas, policies, and practices, current continuum of services available, effective curriculum adaptations, effective teaching and assessment strategies for use with diverse learners, and teacher, as well as, school collaboration.

## **Levels**

The type of field-based experience in which the students participated distinguished the three levels of the independent variable. They were mentoring, inclusive classroom support, and subject only.

### **Mentoring**

The primary education degree students attending Campus A undertook the mentoring condition. In this condition, the common core of the inclusive education subject was followed by a one-on-one student mentoring experience with secondary students identified as being at-risk for underachievement in regular class settings. This group completed 14 h of training in a mentoring program entitled *You Can Do It* (Bernard, [2002](#); Evans, [2004](#)) prior to undertaking the mentoring experience. The training programme included interpersonal communication skills for mentoring, organisation and structure of meetings, giving feedback, and action planning. The mentors were then assigned to two mentees and spent 2 h per week in the secondary school setting (1 h per mentee) working on study goals, action planning, and social skills. Each mentoring session followed a common structure that included: (a) reconnecting and reviewing previous goals; (b) establishing progress since last meeting; (c) determining the central focus of the current meeting and how to work through the agenda; (d) agreeing on an action plan for the following week; and (e) reviewing the meeting achievements.

The high school students were invited to attend by their in-school coordinators based on the school coordinator perceptions of underachievement, and with parental permission to participate. The group included students with disabilities who qualified for additional services.

### **Inclusive classroom support**

The primary education degree students attending Campus B undertook the inclusive classroom-support experience. In this format, the common core of the inclusive education subject was followed by a series of additional lectures and tutorials on communication, transition, literacy and numeracy difficulties, and assistive technology, in preparation for an

experience in inclusive classrooms. The students then participated in a weekly, 1-h inclusive classroom-support experience scheduled throughout weeks 7-13. Students worked with individuals or small groups, as determined by the class teacher. Activities centred on literacy and numeracy skills, including guided reading, home reading, small-group activities, and one-to-one guided practice with literacy skills. The groups included students with a documented special educational need and their peers.

### **Subject only**

The subject-only condition was a full 13-week university-based programme at Campus A that did not include any form of applied experience. This programme was undertaken by the Early Childhood degree students only. After the common core of lecture and tutorial experiences, the students in the campus-based condition received an additional 6 weeks of lectures and tutorials in early intervention, communication and language development, assistive technology, literacy and numeracy skills, and transition to school for students with special needs. The students were required to prepare group presentations that translated the lecture and tutorial content into practice.

While different in their form and delivery, the three approaches met the requirements of the common university approved profile for the course. The common profile existed to ensure that key knowledge and understandings would be addressed in all iterations of the course.

### **Dependent Measure**

The Self-Efficacy Toward Future Interactions with People with Disabilities Scale (SEIPD) (Hickson, [1996](#)) was employed in the study. The scale comprises 15 items from three areas: willingness to initiate behaviour, willingness to expend effort in completing behaviour, and persistence in the face of adversity (Hickson). The SEIPD employs a Likert-type, 8-point scale ranging from “*definitely false*” to “*definitely true*”, with no midpoint, as a format for responding to statements such as “I am able to plan and organise appropriate activities for my students” (Hickson, [1996](#), p. 111).

The reliability of the SEIPD was determined using test-re-test and alpha coefficients employing a sample of 180 teachers and nurses. A mean alpha coefficient of 0.87 was reported for the SEIPD, while test-re-test reliability produced a reliability coefficient of 0.80 over a 4-week interval and of 0.68 over a 6-week interval (Hickson, [1996](#)). 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% of the variance (Hickson). Statistically significant correlations (0.32) were found between the SEIPD and the Scale of Attitudes Toward Disabled Persons (Antonak, 1979, cited in Hickson, 1996) and the Attitudes Toward People with Disabilities Scale (0.50) (Yuker, Block, & Young, 1970, cited in Hickson), confirming the relationship between attitude and self-efficacy.

## **Results**



Prior to determining any effects related to the intervention, a one-way analysis of variance was employed using the pre-test score on the SEIPD as a covariate to identify any differences on the dependent measure associated with the students' programmes or campuses they attended. No statistically significant differences were found across the groups (Primary Campus A, Primary Campus B, Early Childhood Campus A) at pre-test,  $F(2, 122) = 1.094$ ,  $p = .33$ , on the SEIPD. This separate analysis was deemed essential given that students could not be assigned randomly to the three applied experience conditions.

A repeated-measures analysis of variance (occasion and experience type) revealed statistically significant differences for occasion (pre to post),  $F(2, 122) = 28.174$ ,  $p < .0001$ ;  $d = 0.57$ . The scores for all three groups increased from pre-test to post-test, indicating that self-efficacy levels improved irrespective of treatment condition. Table 1 presents the mean and standard deviation scores at pre-test and post-test for each of the applied experience conditions.

**Mean and standard deviation scores by field placement Table 1. group**

Group	Pre-test		Post-test	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Campus A—mentoring	75.07	8.07	83.17	22.77
Campus B—classroom support	76.46	27.04	92.81	9.69
Campus C—comparison group	69.08	26.99	87.65	12.52

The gains in self-efficacy were as follows: the subject-only group (18.58), followed by class support (16.34) and mentoring (8.1). There was no statistically significant interaction with the effects of all levels of the independent variable remaining consistent from pre-test to post-test occasion. Standard deviation scores decreased for the class-support and subject-only conditions from pre-test to post-test, although increased for the mentoring condition. Overall, the results indicate that participation in an inclusive education course did covary with stronger beliefs about self-efficacy among students in all three conditions. However, those beliefs were not affected to a statistically significant level by participation in a field-based experience as part of the programme. The results of the analysis of variance for experience was non-significant,  $F(2, 122) 1.597$ ,  $p = .21$ . The type of field-based experience included in the course did not differentially effect perceptions of self-efficacy at a statistically significant level.

## Discussion

The findings of this self-efficacy study are consistent with previous findings for teacher attitude that showed positive effects associated with preservice applied experiences (Forlin et al., 1999; Hopper & Stogre, 2004; Richards & Clough, 2004). Like those attitude studies, the present study showed a consistent overall positive increase in self-efficacy that co-varied with participation in a preservice inclusive education course. What is also clear, however, is that the inclusion of an applied experience does not necessarily co-vary with greater gains in self-efficacy. In this study, the greatest gain was made by the group whose course did not include an applied experience, while the students who experienced the most structured applied experience (mentoring programme) experienced the lowest increases in self-efficacy. It is

important to acknowledge that the classroom-support group did make similar gains to those in the subject-only condition and recorded the highest levels of self-efficacy overall.

Of the three approaches, the mentoring programme offered the most structured opportunity for a mastery experience for working with students, given the formal mentoring training associated with this approach. Yet this did not translate into greater self-efficacy gains. One explanation for this outcome is that the mentoring occurred in a one-on-one setting while students knew that they were preparing for working with students who have special needs in classroom settings. This explanation is also consistent with the greater gains made by the classroom-support group who worked in inclusive classrooms throughout the applied experience component of the subject; although it does not explain the gains made by the subject-only group.

A further explanation also closely aligned with the theory of self-efficacy pertains to consideration of what actually constitutes a successful mastery experience. As is the case with many immersion-type experiences in preservice teacher education, immediate corrective feedback that would build mastery and create the opportunity for self-correction was not available in either the mentoring or the classroom-support experiences. While the student mentors had to qualify with respect to their mentoring skills, this did not extend to a specific evaluation of their work *in situ* with students, and, like the classroom support placement, could not be construed as a true mastery experience. In order to build mastery in a manner that influences self-efficacy, students may need additional direct instruction in how to work with students who have difficulties learning that includes timely corrective feedback. For example, although not reported in this article, qualitative data for the mentoring group indicated that students felt the need for additional training in strategies to accommodate diverse learners beyond that provided in the mentoring sessions (see Lancaster, [2006](#)). Those participants also expressed a need for more information about different types of disability.

Despite the fact that the three conditions involved varying amounts and types of knowledge about inclusive education and not all were mastery-based experiences, it is important to emphasise that increases in self-efficacy were achieved under each iteration of the subject. The university subject content and the applied experiences described here can each be viewed as potential sources of self-efficacy as described by Bandura ([1997](#)), while also creating a context for the exposition of mediating variables such as attitude, task engagement, and feedback (Linnenbrink & Pintrich, [2003](#); Margolis & McCabe, [2003](#)).

What is less clear from the findings is the specific influence of the applied experience on self-efficacy. As with studies of attitude, it cannot be assumed that a direct experience with persons who have special educational needs is going to be efficacy building. It is possible that such an experience actually serves to clarify the order of magnitude of the professional challenge associated with this work, possibly constraining the overall sense of efficacy. By way of contrast, an untested theoretical experience may build a greater sense of capacity in the absence of an opportunity to test that mastery in real settings. The possibility of what could be termed an “ignorance is bliss” effect suggests that, while direct mastery experience may be the greatest contributor to self-efficacy (Morell & Carroll, [2003](#)), any applied experience needs to be carefully designed to build a level of mastery and capacity capable of influencing the self-efficacy beliefs of preservice students.

This perspective creates a caveat when interpreting levels of self-efficacy. For example, according to Klassen ([2002](#)) and Weinstein ([1988](#)), it should not always be assumed that high



levels of self-efficacy are necessarily desirable, especially if they reflect only limited experience. From this perspective, the fact that the self-efficacy scores increased could reflect inflated expectations of competence and an underestimation of the difficulty of teaching. Thus, it becomes imperative that the experiences of preservice teachers assist them to develop realistic efficacy expectations that reflect their knowledge and skill. In the absence of a strong mastery focus, the major takeaway from the experience could be a deeper understanding of just how difficult the work turns out to be, an outcome that may also be desirable (Weinstein).

The results of this study would suggest that the provision of a direct experience is, in itself, not sufficient to build the efficacy of preservice teachers. Such experiences may need to build mastery while also providing an opportunity to test that mastery in settings that are fully consistent with the context in which the preservice students expect to work. Cunningham (1989) suggests building a sound knowledge and application of strategies ranging from direct teacher-controlled strategies to indirect student-controlled strategies to improve self-efficacy.

The findings also point to a need to explore carefully the assumptions on which the design of preservice instruction in inclusive education is based (Britten & Lai, 1998). The results of this study support existing work in the area of preservice teacher preparation—in areas other than inclusion—that show self-efficacy beliefs can change during preservice teaching experiences (Hoy & Woolfolk, 1990). However, the present study would suggest that a more detailed understanding of the nature and effects of applied experiences is necessary in order to establish their value and maximal impact on the self-efficacy of preservice educators. This includes the design characteristics of such experiences, the extent to which they are mastery-based, their connection to the perceived future in-service role of preservice educators, the way feedback is delivered, and the form of student engagement.

## **Limitations and Conclusions**

While there were no statistically significant differences across the three groups on the SEIPD prior to participation in the special education course described here, it is important to acknowledge the design could not control for factors that could have influenced the outcomes during the 13 weeks of the study. Given that randomised assignment to condition is often difficult in this kind of research, a more detailed analysis of the implementation could have enabled the identification of some potential intervening factors. It is also important to acknowledge the issues associated with the analysis of gain scores under such conditions, given that groups may grow at different rates related to issues of selection, history, and maturation (Huitema, 1980).

The results of this study suggest that future research should focus on the specific design and implementation of any applied experience in order to more fully understand its effects on self-efficacy and those variables that exert a mediating influence on this construct. Such a focus can also include efforts to address the selection of participants and the monitoring of the participants' experiences over the duration of the study. It would seem that a more quantitative means of measuring progress needs to be included to provide a clear rationale for inclusion in the programme as well as a means to establish progress made throughout the intervention (Lancaster, 2006).

In conclusion, the findings of this study draw attention to the design issues associated with preservice teacher education courses in inclusive and special education. The finding that such programmes can improve the self-efficacy of preservice educators is encouraging, while the equivocal outcomes in relation to the applied experience component calls for subsequent research to explore, more deeply, the role and design of applied experiences in preservice education if they are to contribute maximally to the growth of preservice teachers.

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