

CO-CREATE: Teachers' voices to inform special education teacher education

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Teacher education is under increasing scrutiny regarding the preparedness of graduates to work in the profession in the early years of their career. To inform a teacher education program on the issues affecting graduates working in the field of special education, 77 special education teachers and principals were surveyed. Findings highlight the importance of consultation and engagement with adults with a disability and the families of children with disabilities, in meaningful ways, such as Q&A sessions, tutoring, presentations and involvement in local support groups. The research seeks to add teachers' voices to uncover potential ways for universities to enhance course delivery for pre-service teachers wishing to work in special education. Six key areas emerged as necessary for inclusion in special education teacher education programs, summarised by CO-CREATE (Consult, Observe, Collaborate, Resource, Evaluate, Analyse, Technology integration and Engagement).

Introduction

The field of special education has evolved considerably over the past half century. There has been a shift from residential settings, to specialised schools, integrated support units and now, increasingly toward inclusive education (Bronwell, Sindelar, Kieley & Danielson, 2010; Shepard, Fowler, McCormick, Wilson & Morgan, 2016). The role of the special education teacher has also evolved in its complexity through the diverse contexts in which special education is delivered. In addition, teacher education has come under greater scrutiny as to its effectiveness (Ingvarson, Reid, Buckley, Kleinhenz, Masters & Rowley, 2014; Mayer, Allard, Bates, Dixon, Doecke, et al. 2015). As such, special education teacher education faces significant challenges in attempts to prepare graduate special education teachers, with the entry point on the continuum of professional learning moving from being prepared to being effective.

To inform special education teacher education, this study draws upon the experiences of teachers and principals currently working in the field of special education, to better understand the skills and knowledge deemed necessary to succeed and be effective in the field. The participating special education teachers and principals provided insights into their daily work experiences, along with their views on innovative ways to effectively engage with universities to prepare graduate teachers to work in special education.

Special education delivery models

The United Nations Convention on the Rights of Persons with a Disability (the 'UNCRPD') is an international human rights treaty with 160 signatories and 173 parties, which intends to protect the human rights of persons with disabilities. The UNCRPD underpins many international strategies to address the rights of persons with disabilities, such as the European Disability Strategy (2010-2020).

In addition, individual countries have specific legislation outlining legal requirements for the education of persons with a disability, such as the Individuals with Disability Education Act (Amendments) (1997) in the United States of America and the Special Educational Needs and Disability Regulations (2014) (amended, 2015) in the United Kingdom. In Australia, where this research has been conducted, there exists the Disability Discrimination Act (1992) (DDA) which seeks to eliminate discrimination against persons with a disability and ensure that a person with a disability has the same fundamental rights as a person without a disability. The DDA subsequently informed the *Disability standards for education 2005* (Department of Education and Training, 2005) which supports principles of inclusion and attests every child's right to be enrolled in an educational facility of their family's choice and to have all reasonable adjustments made, and services provided, to ensure access to relevant learning experiences, including methods of assessment and accreditation (Dempsey, 2014; Young, 2016).

There are three educational options (other than home-schooling) currently available to students with disabilities. Firstly, in accordance with principles of inclusion, some students with disabilities are educated at their local school, sometimes with government funding to assist with the provision of reasonable adjustments, but often with insufficient funding support. Within inclusive schools, special education teachers are employed in the role of a learning support teacher. The inclusive education model sees, at one level, the general classroom teacher maintaining responsibility for the student with additional needs in his/her classroom, through to a context where the special education teacher takes greater responsibility for the progress (program development, delivery and monitoring) of the student with a disability (Bronwell, Sindelar, Kiely & Danielson, 2010; Shephard, Fowler, McCormick, Wilson & Morgan, 2016). A consequence with this model is role ambiguity for teachers, and blurred boundaries between teachers, which can have significant impact on the work of the special education teacher.

Alternatively, a student with a disability may be educated within a support unit at a local school (where such an option is available). In this context, separate classes are available to students with additional needs; they are educated at the same site as their peers, but within a specialised teaching context. The underlying goal of support units is for students to be integrated with their peers for a range of learning and social experiences where possible. The third option is schools for specific purposes (SSPs). These schools generally have a specific focus on intellectual disabilities, behaviour/ emotional disorders and can include hospital schools (NSW Department of Education, 2013). While these schools do not necessarily reflect inclusive educational practices, these settings enable the intensive, specialised instruction and resourcing which may not be available to a student in the general classroom setting. As such, parents may determine an SSP setting to be the most appropriate educational environment for their child in order to maximise learning potential toward functional living skills or in cases where intensive intervention is required prior to a student returning to their local school.

A consequence of this three-tiered education system for students with a disability is that special education teacher graduates must be prepared to work across three educational models which vary considerably in terms of teacher roles, teaching philosophy,

responsibilities and the types of teaching and learning activities conducted. This contributes to the challenges faced by teacher educators attempting to prepare graduate teachers to work effectively across educational environments, and this is further compounded because there is no one single path to gain qualifications to work as a special education teacher.

Special education teacher qualifications and standards

Internationally, the path toward employment as a special education teacher varies considerably. For instance, in the United States aspiring special education teachers can undertake specific studies as part of their undergraduate or postgraduate education degree. Alternatively, where special education is not offered as part of their degree, those wishing to work in special education will undertake a special education teacher preparation program after completion of an initial teaching degree. This program is necessary to gain the professional licence that is required to teach in the field. Prospective special education teachers in the United States are also required to pass a series of standardised assessments before being certified to teach in special education. By contrast, other countries have less stringent requirements, such as Singapore, where individuals with an interest in special education generally seek employment at a special education school and then undertake a Diploma in Special Education to gain teaching qualifications.

This variation is reflected in the Australian context where accreditation requirements to work as a special education teacher vary across states and territories, and there is no designated pathway to formal qualifications. In general, graduates require a recognised teaching degree and must have completed “units in special needs/education support” (Department of Education Western Australia, undated). Alternatively, teachers may have gained teaching qualifications in primary or secondary education and then “undertake further postgraduate study to obtain additional qualifications in a particular special education field” (Department of Education and Training Victoria, undated).

Australian state and territory governments recognise the importance of appropriately qualified teachers working with students with additional needs, and special education has been identified as a priority area in teacher education (NSW Department of Education, 2015). As a result, scholarship and internship programs have been established in Australia to support qualified teachers in obtaining additional qualifications in special education (Audit Office of New South Wales, 2016). The importance of appropriately qualified teachers is illustrated by research that demonstrates positive educational gains for students with a disability when their teacher holds qualifications in special education (Brownell, Dimino, Bishop, et al., 2009; Feng & Sass, 2010).

The *Australian Professional Standards for Teachers* set out the accreditation requirements for teachers (NESA, 2012). The *Standards* cover three domains: professional knowledge, professional practice and professional engagement, which are expressed through seven standards:

1. know students and how they learn
2. know the content and how to teach it
3. plan for and implement effective teaching and learning
4. create and maintain supportive and safe learning environments
5. assess, provide feedback and report on student learning
6. engage in professional learning
7. engage professionally with colleagues, parent/carers and the community.

The *Professional Standards for Teachers* reflects a global move toward teacher performance evaluations, which have had significant impact on education reform initiatives (Woolf, 2015). The concern for special education teachers is that, although there is a sub-clause that relates to teaching diverse student populations, the *Standards* do not adequately capture the unique work of the special education teacher. In contrast to most teaching standards which are directed toward the professional activities of mainstream teachers, the United States' National Council for Accreditation of Teacher Education (2012) (now, Council for the Accreditation of Educator Preparation) approved the Council for Exceptional Children's Special Education teacher Initial Preparation Standards (2015). There are seven standards that incorporate 28 key elements to capture the specific and diverse skills, knowledge and practices of the special education teacher, *inter alia*, beginning special education professionals:

.... know how to intervene safely and appropriately with individuals with exceptionalities in crisis" (p. 2); modify general and specialized curricula to make them accessible to individuals with exceptionalities (p. 3); ... are familiar with augmentative and alternative communication systems and use a variety of assistive technologies to support the communication and learning of individuals with exceptionalities (p. 5); and teach to mastery and promote generalization of learning (p. 5). (Council for Exceptional Children, 2015)

These detailed standards are useful to inform special education teacher education by identifying the component skills required to work effectively in the field.

Role of the special educator

The literature is heavily focused on the preparedness of mainstream teachers to work in an inclusive classroom context. Commonly, it is found that pre-service teachers feel poorly prepared to teach students with diverse needs. Moreover, exposure to students with diverse educational needs can lead to greater tensions as pre-service teachers are confronted with the complexities of teaching children with disabilities (Forlin & Chambers, 2011; Hemming & Woodcock, 2011). Similarly, beginning special education teachers report challenges in aligning their teacher education experiences with their classroom practices, where they initially find themselves operating in survival mode (Bay, Parker-Katz, 2009; Jones, 2009). One question addressed in Billingsley, Griffin, Smith, Kamman & Israel's (2009) review of literature was the "... *experiences and concerns of new special educators in their first years of teaching*" (p. 3) and they organise these concerns into three broad categories: inclusion, collaboration and interactions with colleagues and parents; pedagogical concerns; and, managing roles.

More specifically, key challenges identified by special education teachers include behaviour management, curriculum development, communication/collaboration, particularly where relationships with general educators affect special education teachers' success with collaboration (Griffin, Kilgore, Winn, Otis-Wilborn, Hou & Garvan, 2009). Additional identified challenges including workload, role ambiguity, professional evaluation and teacher shortages in the field (Rock, Spooner, Nagro, Vasquez, et al., 2016). Such challenges result in high turnover rates for early career special education teachers (Dempsey, Arthur-Kelly & Carter, 2009).

To operate in the tiered education system the special education teacher requires a diversity of skills which include: understanding complex disabilities, applying evidence-based interventions and practices, interpreting eligibility criteria, legislation and policy knowledge, intensive assessment, data collection and monitoring techniques, developing individualised programs, differentiating and making adjustments to mainstream curricula and resources, integrating assistive technologies and support agencies, collaboration with multiple professionals in diverse fields, working with and supervising support staff (Bronwell, Sindelar, Kiely & Danielson, 2010; Ergul, Baydik & Demir, 2013; Rock, Spooner, Nagro, Vasquez et al., 2016; Whitaker, 2003).

Review of special education teacher education programs reveal a proliferation of diverse coursework and course delivery approaches (Vernon-Dotson, Floyd, Dukes & Darling, 2014). Teacher educators who seek to embed innovative and effective practices into programs find they are "...bound more by a range of budgetary, capacity, and policy contexts internal and external to our college and/or university" (Rosenberg & Walther-Thomas, 2014, p. 79). Leko, Brownell, Sindelar & Murphy's (2012) analysis of 93 studies into special education teacher education report the most effective strategies implemented in pre-service special education teacher education include: collaboration between teachers and pre-service teachers, video-modeling, case studies and field experiences aligned with coursework.

This study seeks to give voice to Australian special education teachers and principals, to understand their daily practices and the challenges they face at this point in time and to uncover ways universities could further enhance course delivery in the field of special education to support those entering the field. Two key questions are addressed in this paper:

- (a) What skills/knowledge are deemed essential for special education teachers in the current tiered system?
- (b) How can the delivery of special education teacher education be improved to ensure graduates can meet the demands of the profession?

Research design

This research emerged as a direct result of University academics and Department of Education representatives holding conversations about teacher education. As a result of these meetings an anonymous online survey was developed. The initial survey was subsequently refined through critical feedback from two special education school

principals. The anonymous online survey was distributed via email to SSPs and schools with Support Units. Distribution of the survey was limited to schools in New South Wales, Australia where the author was developing a new sub-major in special education as part of a Bachelor of Arts/Bachelor of Education (BA/BEEd) and also seeking to improve mandatory inclusive education subjects in the BA/BEEd and Master of Teaching programs.

There were 77 respondents who were predominantly female (83.1%) but represented a broad range in age, years of teaching experience and current teaching position.

Table 1: Survey respondents' demographic information (N=77)

Age		Years' teaching experience	
20-25	3.9%	1-5	19.5%
26-30	9.1%	6-10	19.5%
31-35	14.3%	11-15	19.5%
36-40	11.7%	16-20	11.7%
41-45	20.8%	21+	29.9%
46-50	13%		
51-55	9.1%		
56-60+	14.3%		

Current Employment		Current region of employment	
Full time	89.6%	Metropolitan	42.9%
Part time	6.5%	Regional	33.8%
Casual	0.0%	Rural	23.4%
Other	3.0%		

Current teaching position	
Primary school teacher	2.6%
Secondary school teacher	5.2%
Special education teacher – SSP	13.0%
Special education teacher – Support Unit	55.8%
Special education teacher (behaviour, literacy/numeracy, vision, hearing, other)	13.0%
Deputy/Assistant Principal	22.1%
Principal	9.1%
Other	9.1%

Data analysis

The survey was designed to elicit the experiences and opinions of teachers and principals in the field of special education. The final survey contained 47 questions, 13 of which collected quantitative data (mainly demographic) and 34 questions collected qualitative data to uncover individual special education teachers' experiences and ideas for improving special education teacher education. Qualitative responses were analysed to generate themes that capture the experiences and opinions of the 77 special education professionals (see Cohen, Manion & Morrison, 2011; Sarantakos, 2005). The specific areas addressed were the work of the special education teacher, perceived skills and attributes of

special education teachers and potential effective strategies to assist pre-service teachers becoming prepared to work in the field of special education.

Findings

The work of the special education teacher

To inform teacher education in special education it was first necessary to uncover the daily work practices and experiences of the special education teacher. To this end, respondents were asked to provide qualitative responses identifying the most significant challenges they face working in special education. Four themes emerged: student behaviour, collegial respect, home/school tensions and workload/resourcing issues.

Not surprisingly, student behaviour was prominent in responses, with a particular concern about violent and aggressive students and the subsequent impact of these behaviours on the teacher themselves and the other students within the class. Following from this challenge is concern regarding the risk of litigation.

Many of the teachers cited a lack of respect they felt was shown towards their work as special educators, particularly from mainstream educators, and a sense that their work and their students were undervalued when compared with that of their mainstream peers. Special education teachers also reported a lack of understanding about the nature of their work by principals and supervisors, specifically when working in inclusive school settings. Along these lines, special education teachers also reported a sense of isolation in their role.

Special education teachers also cited “*dysfunctional families*” and “*home/school connection problems*” along with general disparity between parental expectations and student abilities.

The intensive workload was also problematic. The requirement to understand the characteristics and abilities of students with multiple and complex disabilities was challenging. This was intensified with the need to “*juggle multi-age classes with vast ability levels*”. A consequence of this diversity was the time involved in developing, implementing and monitoring individualised learning programs for each student, particularly with a lack of resources to aid the delivery of quality programs. Additionally, the increasing level of administrative work was raised.

Skills and attributes of the special education teacher

At two points throughout the survey, open-ended questions were included to identify the skills and attributes which special education teachers and principals deem essential to succeed in the field of special education. Firstly, respondents were asked “*If you could go back to study your teaching degree today list the five most important skills you needed as a graduate special education teacher*”. Analysis of data identified characteristics that were subsequently categorised as: personal attributes, interpersonal skills, knowledge and pedagogical understanding. To further explore the skills and attributes required a second question was asked “*From your experience, what are the essential skills/ knowledge that pre-service teachers require to*

be able to work successfully in specialised settings upon graduation?” The responses to these two questions were compared to gain more in-depth understanding. There were some commonalities in areas of patience, stress management, collaboration and communication skills, working with the School Learning Support Officer (SLSO, formerly the teacher’s aide), programming/planning, understanding diagnosis, differentiation, and integrating technology.

However, there was not always consistency and alignment across the two open-ended questions. Table 2 reflects the extensive and broad characteristics, skills and knowledge perceived to be required by beginning special education teachers.

Table 2: Desirable skills and attributes of special education teachers

If you could go back to study your teaching degree today list the five most important skills you needed as a graduate special education teacher?		From your experience, what are the essential skills/knowledge that pre-service teachers require to be able to work successfully in specialised settings upon graduation?	
<i>Personal attributes</i>	patience resilience stress management flexibility organisation skills time management	<i>Personal attributes</i>	patience resilience stress management calmness commitment tolerance
<i>Interpersonal skills</i>	collaboration skills communication skills working with the SLSO conflict resolution networking speaking positively supporting families	<i>Interpersonal skills</i>	collaborative skills communication skills understanding role of SLSO professionalism
<i>Knowledge</i>	programming/planning understanding diagnosis availability of resources current research on best practice completing documentation OH&S functional communication understanding mental health issues where to go for assistance	<i>Knowledge</i>	programming/planning understanding diagnosis understanding workload case management Disability Standards for Education Disability Discrimination Act Child protection and welfare policies Organisational structures
<i>Pedagogy</i>	differentiation integrating technology teaching ‘tricks’ (eg. calming activities, quick fillers) direct instruction	<i>Pedagogy</i>	differentiation integrating technology assessment across all domains data collection teaching social skills

	making adjustments		teaching self care skills establishing a routine behaviour management using visuals
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The survey also asked: *“When you first commenced your special education teaching how would you rate your confidence in the following areas...”* (Table 3). Confidence was reported to be stronger in the areas of: interpersonal relationships with colleagues; working with other professionals; and, child protection. The lowest levels of confidence pertained to: applying school policies/procedures; understanding State/Federal policies; writing individual programs and completing documentation.

Table 3: Special education teachers' initial perceived confidence (N=77)

When you first commenced your special education teaching how would you rate your confidence in the following areas...	No – low confidence %	Neutral %	Confident – highly confident %
Behaviour management	28.9	21.1	50
Completing documentation	39.5	22.3	38.2
Dealing with parents/caregivers	31.5	22.4	46.1
Interpersonal relationships with colleagues	13.1	13.2	73.7
Working with other professionals	17.1	17.1	65.8
Child protection	17.1	13.2	69.7
Understanding State/Federal Policies	46	26.3	27.6
Applying school policies/procedures	35.6	21	43.4
Writing individual programs	40	20	40

Table 3 suggests relatively high levels of confidence in several areas. Analysis of the qualitative data related to this question suggests this confidence derives from many of the respondents having mainstream teaching experience, prior to moving into the field of special education. Other factors for increased confidence include: being a parent, being a mature age student and/or having previous experiencing working with people with a disability.

Effective strategies for teacher development

To better understand effective teaching strategies that could be applied at university to improve pre-service teacher learning, practising teachers and principals were asked to describe the most valuable and engaging learning experiences offered through professional development courses. Results were overwhelmingly focused on practical strategies using real-world examples. The respondents' qualitative statements emphasised the importance and value of *“hands on research and information that is actually being used in the settings we work”* and *“those [delivering courses] that understand the realities of the classroom and can offer real solutions or suggestions that are realistic and able to be implemented”*. Respondents also valued professional development sessions that included *“real life examples and practical resources”* with added emphasis on the value of being able to observe others putting into practice the techniques and strategies being learned. Following from this, the teachers

valued learning experiences presented by instructors who had relevant and recent experience in classrooms.

The second area reported was the value of learning experiences which included opportunities for collaboration and *“networking with other schools to learn what they are doing”* with *“opportunity to develop professional networks”* amongst teachers *“who understand students with diverse learning needs”*.

The final theme to emerge was the potential of technology to engage the teachers, where *“online courses offer flexibility and useful information”*. However, when asked *“If you could go back to study your teaching degree how would you rate the following delivery modes?”* (Table 4). Fully online programs for special education teacher education were considered undesirable for almost two-thirds (66.2%) of respondents.

Table 4: Preferred mode of pre-service special education teacher education delivery

If you could go back to study your teaching degree how would you rate the following delivery modes?	Not desirable	Desirable	Very desirable
Blended mode	22.1	51.9	26
Fully online (distance)	66.2	24.7	9.1
Within schools	3.9	20.8	75.3
Traditional university (face to face lectures and tutorials)	14.3	48.1	37.7

Despite only limited respondents supporting online course delivery, when asked how teacher education might effectively engage students on specific topics, the use of technology featured heavily. The question was posed,

Beyond traditional practicum placements, what innovative ways could pre-service teachers learn about...

- assessment and analysis
- writing specific learning objectives
- programming
- monitoring
- reporting
- inclusion
- explicit instruction
- behaviour management
- specific diagnosed conditions
- working collaboratively

Each of the 10 items was listed separately in the survey, and each respondent identified between 0-5 suggestions of techniques and activities teacher educators could implement to teach each of these 10 elements of their work. These responses were mapped out to identify themes wherein it became apparent that consultation, collaboration and engagement between teachers, parents of children with a disability, adults with a disability, community groups and universities were highly valued. Also, activities that enabled

evaluation and analysis were proposed, along with the use of authentic resources and technology. In summary, the key findings were the need to: consult, observe, collaborate, resource, evaluate, analyse, incorporate technology, and engage. Table 5 captures the types of activities suggested by the respondents, which have been organised using the acronym *CO-CREATE*.

Table 5: CO-CREATE: Strategies for enhancing special education teacher education

Consult	Seeking advice/information from other professionals (e.g. occupational therapists; speech therapists), parents, adults with disability; through Q&A workshops and guest lectures involving teachers, parents, students and other professionals.
Observe	Observe practice in schools, connected classrooms, online videos.
Collaborate	Utilising teams-based program development; mentoring programs; team-teaching; online communities.
Resources	Trialing resources across a continuum of traditional to innovative (e.g. paper, clicker, tablet); online sharing of resources; establish contact/service provider databases.
Evaluate	Practice in evaluating: modified programs and assessments; online programs; commercially produced programs/resources.
Analyse	Comparing features to identify good/poor programs; review regional and international programs, policies and resources; action research projects.
Technology	Integrating technology: online videos; video conferencing; video modeling; online training modules; personalised app profiles for data collection/monitoring; access remote data of actual classroom to develop programs; sharing teaching experiences online.
Engagement	Engagement through: tutoring a person with an additional need; outreach programs; weekly classroom visits to collect data; authentic case studies; volunteer at sports carnivals, excursions, extra-curricular activities; attend places where students transition from school to the workplace; involvement in local community/disability groups and support agencies; work as an SLSO.

Finally, special education teachers and principals were also asked to suggest ways to effectively improve the relationship and communication between schools, universities and pre-service teachers. It was apparent from respondents that it is not only the pre-service teachers who should cross between the school/university environments, but that lecturers and classroom teachers should actively engage in each others' working environment through meaningful activities. It was suggested teachers deliver content on university campuses while academics attend schools to engage in team-teaching activities and share contemporary research and theories with time-poor teachers. The respondents also requested more regular contact with pre-service teachers through apprenticeship models, mentoring and coaching programs. There was an emphasis on developing communities of practice through face-to-face meetings/events, online activities and practical activities in the workplace. These workplace activities depicted a continuum from observation to team-teaching and mentoring activities.

There was strong support for the use of technology to enable collaboration and networking activities via connected classrooms, online communities and shared blogs. It was also suggested that teachers, academics and students should regularly meet through a series of formal and informal activities to develop and strengthen relationships and engage in skills-sharing.

Discussion

The primary purpose of this research was to understand the skills and attributes special education teachers identified as essential in preparation for, and working within, the field of special education, which occurs across three different contexts: specialised schools, support classes, and working as learning support teachers in inclusive schools. Further, the research sought special education teachers' and principals' perspectives on effective delivery models for, and development activities in, special education teacher education. The premise was that those best placed to contribute to improving teacher education are the professionals working in the field on a daily basis.

The survey data identified many intrapersonal skills which practising teachers and principals consider essential to succeed as a special education teacher. Reflection on one's personal characteristics when assessing suitability for any profession is important, and particularly in teaching, to avoid friction between personal and professional identities (Korthagen, 2004). This is a significant issue for teacher educators who must recognise the traits that lend to successful practice, with the knowledge that many such traits cannot necessarily be taught. The teacher educator can, however, work with pre-service teachers to identify ways in which these characteristics affect teachers' practice and raise awareness of the implications for career fulfilment and subsequently the effective education of students with disabilities.

The CO-CREATE model (presented in Table 5) highlights a key message from respondents, the importance of consultation and engagement with adults with a disability and families of children with a disability, to inform education programs in meaningful ways such as via Q&A sessions, tutoring, presentations and involvement in local support groups. This consultation and engagement is supported by previous work where it has been found that exposure to persons with disabilities positively influences perceptions (Hemmings & Woodcock, 2011) and input from persons with a disability gives pre-service teachers a stronger sense of authenticity (Lewis & Bagree, 2013).

The CO-CREATE model also emphasises a continuum from observation to collaboration across a range of mediums incorporating online, classroom and university campus activities. Evaluating and analysing authentic resources was highly valued to support pre-service teacher learning across a range of areas including assessment and programming. The development of resource banks was also highlighted as an important contributor to initial special education teachers' learning, with particular value placed on sharing resources using appropriate online tools. The rise of social media has seen rapid growth in teachers sharing knowledge and resources. This occurs through informal social networking platforms and also through more formal and purposefully created platforms

developed by education institutions. It would be beneficial for teacher educators to identify authentic and meaningful ways pre-service teachers can become active participants in quality online sharing environments whilst concurrently developing skills in critical evaluation of this online content.

In addition to information and resource sharing amongst teachers who may be unknown to each other, there are also opportunities to improve mentoring programs using online tools, noting positive outcomes from induction and mentoring programs have been found (Parker-Katz & Hughes, 2008, Bay & Parker-Katz, 2009; Jones, 2009). Early investigations into the use of online spaces to support mentoring identified teachers' lack of confidence with technology as an inhibiting factor (eg. Seabrooks, Kenney & LaMontagne, 2000). This may be less problematic today with the increased use of technology in the daily personal and working lives of teachers. Online mentoring has the potential to include larger numbers of participants and has been found to positively impact beginning teacher experiences and reduce feelings of isolation (Dempsey, Arthur-Kelly & Carty, 2009). Mentoring relationships are, however, going to be stronger with initial face to face contact that is supported by the respondents in this survey seeking a range of formal and informal opportunities to meet with academics and pre-service teachers across an extended period. The challenge for teacher educators is to keep pre-service teachers and practising teachers sufficiently engaged to ensure the online activities have depth and are meaningful, whilst acknowledging the time constraints under which all parties are working.

Survey data revealed that 97.4% of the 77 respondents viewed in-school pre-service teacher education as desirable or very desirable. There was also considerable support for blended modes of delivery (77.9%) integrating on campus and online delivery of teacher education programs, incorporating a range of online tools to develop pre-service teacher knowledge and skills. The corresponding requirement for teacher educators is to extract those course components that could most effectively be delivered online (Vernon-Dotson, Floyd, Dukes & Darling, 2014). Respondents in this research suggest that technology should be incorporated for collaboration and sharing, video-modelling, and allowing students to access authentic data and programs and to observe classroom practices. Previous research indicates procedural and content knowledge can be effectively delivered online (Dieker, Lane, Allsop, O'Brien, Wright, Kyger & Fenty, 2009; Gormley & Ruhl, 2007). Online tutorials have also been found effective when introducing pre-service teachers to a range of assistive technologies (van Laarhoven, Munk, Zurita, Zurita, Smith & Chandler, 2008).

The importance of all parties to move between online, school and university environments has emerged as potentially powerful to improve practice. A positive finding was teachers expressing desire to engage in activities beyond their own classroom and schools, including attending universities for networking activities, lecturing undergraduate students and professional learning experiences. Respondent teachers expressed a welcoming view of academic staff to actively engage in their classrooms through team-teaching and other collaborative practices. In addition, some respondents were supportive of the use of technologies to allow pre-service teachers an inside view of daily practices, where face to face experiences are not practical. The potential to engage technology to

allow authentic classroom observations in real time has improved considerably. The rise of mobile device capabilities goes some way to address previous pragmatic limitations such as timing of online activities around university and school timetables and room allocations. Significant ethical issues remain, however, particularly in terms of parental consent for students to be observed via online tools and how resulting data might be captured and used in future.

Practising teachers and principals offer unique insights into their own professional experiences and understand the requirements for their future colleagues to enter the field. As noted, analysis of respondents' views suggest seven practices to be integrated into special education teacher education programs: (a) consultation with parents, persons with additional needs, other professionals; (b) observation of effective practices both in person and using appropriate online tools; (c) collaboration through development of teams, co-teaching and mentoring; (d) resource collation, including online sharing; (e) evaluation of authentic practices and programs; (f) analysis, through critical comparisons of local and international practices and programs; (g) integration of technology to form online communities, access to classrooms and to authentic data; and, (h) meaningful engagement with community and extra-curricular activities relevant to working with persons with additional needs, that is, CO-CREATE.

As a result of the findings of this research two initial changes to course delivery have been made. Firstly a cohort of 15 students enrolled in the Master of Teaching have undertaken the core inclusive education subject, supported by online lectures and attending a secondary school to work with the learning support teacher, rather than traditional on campus tutorials. Secondly, videos are in production which provide authentic case studies in literacy assessment for campus-based students in the BA/BEd.

Incorporating special education teachers' and principals' voices into special education teacher education program design is an important step in course improvement. Subsequently trialing and evaluating the effectiveness of various CO-CREATE approaches is essential to understand their value in preparing graduate special education teachers to work across multiple educational contexts. Evaluation studies must also take place to examine the effectiveness of a pre-service program's pedagogical practices to prepare graduates to go beyond merely coping in the profession, into being effective in educating students with disabilities.

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