Converting theory to practice: University-school collaboration on devising strategies for mentoring pedagogical knowledge

Peter Hudson and Sue Hudson

Queensland University of Technology

Abstract

There appears no shortage of theorists for preservice teacher education; however many ideas are abandoned without practical applications. Indeed, it can take years for theories to materialise into practice, if they materialise at all. The quality of preservice teacher education is central for enhancing an education system, and mentors' roles can assist to shape preservice teachers' development within the school context. Yet mentoring can be haphazard without being underpinned by a theoretical framework. A mentoring model (personal attributes, system requirements, pedagogical knowledge, modelling, and feedback) has emerged from research and the literature to guide mentors' practices. This qualitative study investigates mentors' pedagogical knowledge as one factor crucial to the mentoring process. More specifically, this study involves a questionnaire and audio-recorded focus group meetings with experienced mentors (n=14) who deliberated on devising practical applications for mentoring pedagogical knowledge. Findings revealed that these experienced mentors pinpointed practical applications around a mentor's role for providing pedagogical knowledge to the mentee. These strategies were varied and demonstrated that any one mentoring practice may be approached from a number of different angles. Nevertheless, there were core mentoring practices in pedagogical knowledge such as showing the mentee how to plan for teaching, articulating classroom management approaches, and talking about how to connect learning to assessment. Mentors may require education on current mentoring practices with practical strategies that are linked to theoretical underpinnings.

Reaching standards of education commensurate with key nations around the world presents challenges for Australian education systems (e.g., Masters, 2009). In addition, there have been many reviews about the preparation of preservice teachers with concerns about their abilities to meet the challenges of today's classrooms (Bradley, Noonan, Nugent, & Scales, 2008). Hence, preservice teacher involvement in practicum and internships has long been considered a crucial way for them to gain real-world experiences (Ganser, 1996, 2002; Little, 1990). These preservice teachers (mentees) require expert guidance within the school context for developing their teaching practices. Additionally, mentoring has been noted as a way to reform education, particularly as preservice teachers enter at the foundational teaching level (Briscoe & Peters, 1997). Yet, the guidance provided by mentoring teachers does not appear to be based on theoretical underpinnings but rather personal experiences of individual mentors. This random process means preservice teachers may or may not receive adequate mentoring within the school context, which in some countries such as Australia is about one-sixth of a four-year degree.

There are obstacles to the mentoring process, such as the quality of mentors available in a school system. There is an argument that mentors must be selected according to their knowledge and skills, which may mean that the quantity of suitable mentors is insufficient for the number of preservice teachers. Poor partnering can cost money and time (Coombe, 1989) and can also result in loss of self-esteem for the mentee (Hunt & Michael, 1983). Yet, it is argued that enhancing the quality of mentoring can be the result of mentor education (Giebelhaus & Bowman, 2002). Teachers in schools need to upgrade their skills through professional development (e.g., currently Education Queensland and the Enterprise Bargaining Agreement are deliberating on 30 hours minimum professional development per year per teacher); in a parallel manner, mentors too should be provided with professional development to enhance their knowledge of current mentoring practices. Universities also have a role in ensuring preservice teachers are placed in appropriate school settings with quality mentors, particularly as more people will be enrolling in universities from lower socio-economic backgrounds and may require additional support (see Bradley et al., 2008). Another argument suggests that not all practitioners are suited to mentoring (Newby & Heide, 1992), but if mentors, especially those in their formative stages of mentoring, are not provided with professional development to enhance their practices then education systems will be

limiting their prospects. The ultimate aim of both teacher and mentor professional development is to augment student outcomes. So, like teaching, mentoring must be purposeful and guided by empirical evidence and the literature (Hudson, 2007).

Simply, there are not enough quality mentors available in the school context. Thus, educating existing and potential mentors on effective practices is key for ensuring the quality of preservice teacher involvement in schools. Principals and school executives need to be part of these quality assurance processes. Mentors must be prepared in their roles as preservice teacher educators by having particular knowledge to take deliberate action in their mentoring and by developing specific skills to critique constructively both their own teaching practices and their mentees' practices. As stated by Upson, Koballa, and Gerber (2002) "Mentors need guidance and training as they develop the skills necessary to become effective mentors" (p. 4). More high-level training needs to occur for mentors to develop expertise (Riggs & Sandlin, 2002). Unfortunately, lack of expertise is not the only barrier to the mentoring process. Mentors have reported that they have inadequate time for mentoring because of class and school constraints. Thus, the issue of time management needs to be part of mentors' professional development to ensure that the mentor's time is used efficiently and productively. A theoretical and empirical framework can scaffold mentors in their practices more purposefully and efficiently.

One such framework is the five factor mentoring model, which has been well accepted worldwide (Hudson, 2007; Hudson, Skamp, & Brooks, 2005). The factors are personal attributes, system requirements, pedagogical knowledge, modelling and feedback, each of which has been derived from empirical research and literature as essential for effective mentoring. This paper focuses on one of these five factors, namely the mentor's pedagogical knowledge. This knowledge encompasses planning for teaching, which requires timetabling, preparation, teaching strategies, and classroom management towards implementing practice. However, it also covers other aspects for effective teaching including how to deliver content knowledge, developing questioning skills, assisting in problem solving, and providing information and guidance for assessment. Such mentoring necessitates clear articulation of expectations and practice, as well as providing the mentee with various viewpoints about teaching. These viewpoints may be concepts around other theories (e.g., Bybee's 5Es, Bloom's Taxonomy, Gardner's Multiple Intelligences), catering for students' varied abilities (differentiation) or any teaching and learning perspective that provides insight for the mentee.

Taking into account these preservice teachers have university coursework that also guides them towards effective teaching practices, the in-school component needs to consolidate, validate, and demonstrate teaching in practical terms. Therefore, strong university-school partnerships are required to coordinate learning in purposeful ways. A link between theory and practice may be noted in how universities work with mentors for articulating pedagogical knowledge to the preservice teacher in the classroom. This study aimed to investigate experienced mentors' devising of mentoring strategies that convert the theory about pedagogical knowledge into practical applications.

Context

This study is set at a small regional campus of a large university in Queensland. The campus is a shared facility with Brisbane North Institute of TAFE that provides educational services to one of the fastest growing and most diverse areas of Queensland; yet there are significantly lower numbers of school leavers within this area attending tertiary education (Department of Education and the Arts, 2005). In 2005, as part of the expansion of course offerings, a Bachelor of Education (primary) was introduced. Implementing the degree meant that the strategic plan for the campus needed to be given careful consideration. As work-integrated learning and community engagement were essential to the vision of the campus (Caboolture Campus 2006-2008 Plan, Queensland University of Technology, 2005), much thought needed to be given as to how this could be combined with providing meaningful learning experiences for preservice teachers. Furthermore, the introduction of the degree needed to be aligned with reviews into teacher education and government policies (e.g., Bradley et al., 2008).

It is well recognised that teacher education requires a partnership between universities and schools (Committee for the Review of Teacher Education, 2003; Ramsay, 2000; Victorian Parliament, Education and Training Committee, 2005; Vinson, 2004). School experiences provide an opportunity for preservice teachers to take the theory learnt at university and apply it to their practice in the classroom. In addition, school-based learning experience provides preservice teachers with opportunities to explore, practice, reflect, experiment, trial and demonstrate many of the concepts taught at university (Brady, 2000; Korthagen & Kessels, 1999). In studies related to preservice teachers' perceptions of their learning at university, the benefits of the school experience is well recorded (Hodge, Davis, Woodward, & Sherrill,

2002; Smith & Snoek, 1996). Preservice teachers purport that school experiences provide a real-world context and a deeper understanding of the nature of teacher's work (Hudson, 2009). Many of the 102 reviews of teacher education in Australia between 1979 and 2006 highlight the importance of the school experience as pivotal to a teaching degree (House of Representatives Standing Committee on Educational and Vocational Training, 2007). Hence, it was decided that the introduction of the Bachelor of Education (primary) degree at this regional campus would incorporate work integrated learning and community engagement through more school-based experiences for preservice teachers.

School placements for preservice teachers are always challenging to find. As a way forward partnership agreements were sought between the campus and local schools. The establishment of a Reference Group of Educators in 2005 meant that key stakeholders could meet regularly to discuss ways in which collaborations could be promoted (Hudson & Hudson, 2008). It was mutually agreed that schools offering support were provided with benefits through free professional development, assistance from preservice teachers, visits to the campus and use of selected campus facilities. A "benefits for all" approach to the partnership was considered a guiding principle. Placements for preservice teachers were found through the agreement, however, feedback provided by preservice teachers completing their school experiences, combined with discussions with teachers and school staff, found that there were inconsistencies in mentor teachers' approaches.

In 2008 the campus received a Federal Government Diversity and Structural Reform Grant titled "Teacher Education Done Differently" (TEDD). The grant was allocated to build upon work established previously at the campus. The main outcome of the grant was to increase the quality of graduates and better prepare them for the real world of the classroom through innovative school-based teaching and learning experiences. A second outcome was to co-design a professional development program for existing teachers to better support them in their roles as mentors. Thus an aim was to devise a program titled "Mentoring for Effective Teaching" (MET). Constructing the professional development program required a collaborative process with university academics and school staff. Academics with a background in mentoring and school staff nominated by principals were invited to be members of a Working Party established to develop the MET program. The 14 members of the Working Party had diverse roles within their institutions as shown in Table 1. All members noted they had mentored preservice teachers in the past. However, nine indicated

they had not received any professional development in mentoring to support preservice teachers in the school context. These findings further emphasised the need for a professional development program on mentoring. The MET program was underpinned by a theoretical framework based on the five factor mentoring model (Hudson, 2007). This model substantiated the development of the MET program and provided a point of reference for Working Party discussions.

Table 1: *Demographics of Mentoring for Effective Teaching (MET) Working Party*

Current position	Gender	Years teaching	Years at current institute	Preservice teachers mentored	Any previous PD in mentoring
Deputy Principal	M	20 or more	6 - 10	1 - 5	no
Support teacher learning difficulties	F	20 or more	11 - 15	11 - 15	no
Learning support teacher	F	6 - 10	1 - 5	1 - 5	no
Head of Curriculum/ICT/ADP	F	20 or more	6 - 10	20 or more	no
Acting Deputy Principal	F	16 - 20	1 - 5	11 - 15	no
Head of Mentoring/Teacher Librarian	F	11 - 15	1 - 5	16 - 20	Yes 1 day mentoring teachers workshop
Deputy Principal	M	20 or more	11 - 15	20 or more	Yes - short workshops only
Principal	M	20 or more	1 - 5	6 - 10	Yes - mentoring seminar
University Lecturer	F	20 or more	1 - 5	20 or more	no
Principal	F	20 or more	1 - 5	11 - 15	no
Deputy Principal	F	20 or more	6 - 10	20 or more	Yes - informal forums
University Lecturer	M	20 or more	6 - 10	20 or more	Yes research
Principal	M	16 - 20	1 - 5	6 - 10	no
University Lecturer	F	20 or more	1 - 5	20 or more	no

Data collection methods and analysis

The data presented in this paper, which relates to pedagogical knowledge, was collected as part of the comprehensive development of the MET program. The participants were the 14 members of the MET Working Party. They completed a questionnaire structured around the practices that theoretically underpinned each of the five factors of the mentoring model (i.e., personal attributes, system requirements, pedagogical knowledge, modelling, and feedback).

For example, one pedagogical knowledge consideration included in the questionnaire was the mentor's articulation of how to plan for teaching. Written responses were collated verbatim and presented to the focus group members four weeks later through emails for member checking (Hittleman & Simon, 2006). Two weeks after receiving the emails, the Working Party gathered for about three hours and deliberated over their initial suggestions. The meeting was audio-recorded and the data categorised according to commonalities (see Hittleman & Simon, 2006). Again, the refined suggestions were collated and emailed to the Working Party members. Finally, a third Working Party meeting of one hour occurred to confirm or refute the refined suggestions in order to reach a consensus. Once again this meeting was audio-recorded and the Working Party members' final comments were analysed to determine how a mentor's pedagogical knowledge can facilitate rich learning experiences for the mentee. The outcomes are presented in the following results and discussion section.

Results and discussion

The strategies proposed by the Working Party members as available to mentors for facilitating the development of pedagogical knowledge in preservice teachers can be categorized according to the eleven practices of pedagogical knowledge described earlier (i.e., planning, implementation, timetabling, preparation, teaching strategies, content knowledge, questioning skills, problem solving, classroom management, assessment, and viewpoints). Each practice and associated strategies will be presented in turn, together with participants' descriptions of the strategies taken from questionnaire responses and audio-recorded Working Party meetings.

These experienced mentors recorded strategies they would employ to assist mentees in planning for teaching. Proposed strategies were refined, further deliberated and agreed upon by the focus group. At the very least, it was deemed important for the mentor to establish a meeting with the mentee to discuss how to plan for teaching. In order to plan, these experienced mentors agreed that lesson planning requires negotiations around timeframes and specific implementation details with reference to "the syllabus with aims (standards/outcomes), lesson content knowledge, the use of commercial texts, and how to sequence the lesson with an introduction, body and conclusion". Differentiated learning and catering for student learning needs was considered as part of the mentor-mentee dialogue around planning to teach. One experienced mentor claimed that it is valuable when the mentor "provides time for the mentee to visit and meet a variety of staff members and view and/or

discuss their curriculum planning". Articulating pedagogical knowledge and modelling of teaching practices need to be linked to adequately explain planning concepts, for instance, showing examples of how to plan a lesson from the teaching program (intended curriculum) and how the mentor plans. The mentor "needs to explain that assessment is linked to the aims (standards/outcomes)".

Timetabling is a key part of planning a lesson with consideration of "balancing time allocated to the Key Learning Areas (KLAs)" and "outlining fixed schedules (i.e., Religious Education, specialist lessons such as art, music or PE, assemblies, parades, break times)". The mentor's discussion of timetabling can be facilitated by referring to the mentor's class timetable. Within this timetable, the mentor can "explain the flexibility of timetabling, that is, some lessons may extend past the prior allocated time, or the value of teaching when has presented itself incidentally, hence, there can be variations to routines". It was strongly advocated that lessons are timetabled for the mentee with adequate time to plan and prepare.

Preparing resources before a lesson would require the mentor to "provide the mentee with examples of preparation (including worksheets, equipment, desk arrangements, and health and safety requirements)". It also needs the mentor to "inform mentee on the type and location of resources". Mentor discussion may involve asking the mentee "how these resources will be distributed and used". An experienced mentor would also know how to substitute one resource for an alternative resource and provide an understanding of how to "network for sharing resources (e.g., colleagues, parental support, and school support)".

These experienced mentors clearly identified crucial aspects of embedding effective teaching strategies that pertained to specific situations and also for building a productive learning environment. Mentors agreed on the need to "explain to the mentee why teachers use particular strategies" and "how teaching strategies can be used within the different stages of a lesson" and for particular KLAs. It was considered vital for the mentor to "discuss the need to experiment with different teaching strategies" and analyse the outcome of using these strategies.

All lessons require content knowledge with key concepts, which is the teacher's responsibility for ensuring accuracy and alignment with both system requirements and the students' levels of learning. Therefore, a mentor can assist the mentee by guiding "where to locate

information for teaching and emphasise that it is the mentee's responsibility to engage in and source the content knowledge". However, the mentor can develop the mentee's professionalism for gaining content knowledge by "questioning the mentee about knowledge for planning, implementing and evaluating teaching to determine how to assist in developing the mentee's knowledge" and "sharing teaching content knowledge with the mentee for teaching particular lessons".

A teacher's questioning skills can be used to elicit desirable responses from students. So agreement was reached that the mentor should "highlight to the mentee the importance of developing questioning skills at various stages during the lesson" and "provide examples of how to construct questions and analyse the outcomes of asking these questions in a lesson". More specifically, it was noted that the mentor should "emphasise the need to ask lower and higher-order questions" (e.g., see Bloom's Taxonomy). The mentee can be asked to include questions within the lesson plan so it provides foresight into the type and level of questions to be asked.

Lessons generally have problems that need to be solved. The mentor can "highlight where problems can occur in teaching and discuss ways to overcome these problems". The mentor can also assist the mentee in problem solving by "discussing flexible approaches and alternative strategies that can be embedded in teaching to solve problems (unpack potential problems before the mentee teaches a lesson)". It was noted in this study that sharing experiences can assist the mentee to connect with practicalities for teaching effectively. Therefore, it was considered important to "share problem solving techniques when fronted with teaching challenges and barriers (e.g., student behaviour, human resources, materials, timelines, and assessment requirements)". This may occur after a mentor models teaching to the mentee, particularly if the lesson does not go according to plan. This will provide an opportunity for the mentor to demonstrate to the mentee that the mentor continues to be a reflective practitioner.

Classroom management was noted consistently as an area of concern for many mentors and mentees. The mentor can assist the mentee by outlining existing classroom management, including organisation of resources and people, and behaviour management. This also means considering "reward system, co-operative learning, and the use of praise". In addition, "sharing anecdotes where personal interactions (positive and negative) may have affected

classroom management" and can guide the mentee's practices. It was recognised that managing the students can require different strategies with "different KLAs and situations (e.g., teaching inside the classroom, teaching outside)". A key aspect that needs to be emphasised is "how the mentee needs to maintain professional relationships for effective classroom management". The mentee can be directed to school management plans and existing classroom management strategies for planning a lesson. Most important is for the mentee to have "clear expectations with consistency of classroom management practices".

Assessment must be embedded in lessons to ensure purposeful teaching and learning linked to system requirements. The mentor can facilitate an understanding of assessment by "discussing forms of assessment, showing how to use a checklist to record students' progress" and articulating how to "develop an assessment rubric in relation to students' work". The mentor can also assist the mentee by "scaffolding the mentee's professional conclusions about analysing students' assessments" and "showing how assessment can be linked to reporting".

Finally, it was argued that there are many viewpoints about teaching and learning. The mentor can "present viewpoints and what it means in terms of personal and professional rewards". The following were further comments by these experienced mentors on how and what the mentor can do for the mentee to be open to educational viewpoints:

- Encourage the mentee to consider other pedagogical viewpoints and ask the mentee to provide viewpoints learnt within the university setting
- Discuss viewpoints (strategies, theories and practices) for teaching particular KLAs
- Encourage the mentee to record viewpoints in a teaching diary towards being a more effective teacher
- Discuss viewpoints outlined in the *Pedagogical Knowledge* theoretical framework (e.g., timetabling, preparation, planning, problem solving, classroom management)
- Encourage the mentee to play devil's advocate about how to teach effectively
- Have the mentee participate in a reflection activity so they can consider the viewpoints of all stakeholders in prior and post learning experiences
- Discuss other people's points of views about teaching (e.g., student, colleague, parent, principal, department, media)

The study presented in this paper focuses on the mentor's pedagogical knowledge and explores how such knowledge can be articulated to preservice teachers. Despite the various roles and contexts of these participants, consensus was reached on common pedagogical practices that pertain to their varied situations. Furthermore, it was not presumed that the responsibility for mentoring rests solely on the mentor; indeed teacher education is a shared responsibility between key stakeholders (i.e., mentor, mentee, school, university). Therefore, participation in mentor education programs needs to include all stakeholders to ensure there is a common discourse and understanding on effective mentoring practices.

Conclusion

This research investigated experienced mentors' views on mentoring strategies that converted theory about pedagogical knowledge into practical applications. Though the focus of this study was to articulate how to mentor preservice teachers by presenting specific pedagogical knowledge, other factors need to be included in this discussion of practical applications, such as the mentors' personal attributes, system requirements, modelling of teaching practices, and providing feedback. Of course preservice teachers have university coursework on effective teaching practices; however the school context can help them to consolidate and validate these practices, thus making the connection between theory and practice. Indeed, there is a concern that teaching practices not validated in the school context may be abandoned by preservice teachers even though university coursework aims to be at the cutting edge of advocating current practices.

Providing strategies to mentors may assist them to streamline their mentoring approaches, which can help to capitalise on their limited time. Despite mentees' inexperience with implementing pedagogical knowledge in the classroom, they too must be part of these deliberations. Further research is required to determine how mentees can contribute to making theory-practice connections, which may indicate their stages of development to assist the mentoring process. Intervention programs underpinned by theory need to be in place. Enacting intervention programs that highlight mentoring strategies aligned with theoretical underpinnings, such as the ones outlined in this paper, can be evaluated through a validated instrument (see Hudson, 2007).

Educating mentors will increase the expertise and pool of available mentors. Similar to preservice teachers being in their formative stages for teaching, there will be mentors in their

formative stages of mentoring. Just as teachers are required to update their knowledge and skills, mentors also need education on current mentoring practices with practical strategies linked to theoretical underpinnings. Devising practical mentoring programs necessitates mentor deliberations over practical effective strategies. Furthermore, inexperienced mentees require a level of support corresponding to their developmental needs. Hence, mentoring programs must be flexible to cater for the differentiated learning of preservice teachers, taking particular consideration of their level at university since a mentee in first year will be at a different level to a fourth year mentee. As about one fifth of a Bachelor of Education degree involves practicum experiences, mentoring programs need to outline practical strategies linked to empirical evidence that articulates fundamental standards for mentoring. Translating theories into practice is paramount to progressive teacher education and consequently educational strategists need to be more proactive in devising programs that efficiently connect theory to practice.

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Authors' Biographies

Associate Professor Peter Hudson
Dr. Peter Hudson's teaching career spans 33 years, including 10 years as a school principal and lecturing at two universities. Most of his doctoral students focus on educational leadership, mentoring and science education. Dr. Hudson was instrumental in devising and implementing new international courses (e.g., a new Bachelor of Education Studies Primary Science degree in Malaysia). His service includes work with the Australian Schools Innovation in Science, Technology and Mathematics (ASISTM) projects and the Australian Government Quality Teaching Program. Hudson's mentoring model for mentors is at the forefront of his work in schools. He currently holds two Australian Research Council (ARC) grants and is project administrator for a large Department of Education, Employment and Work Relations grant.

Suzanne Hudson

Suzanne Hudson (MEd, TESOL, BEd, DipTeach) has been involved in teaching and teacher education preparation for the past 32 years. Research interests include teacher induction, mentoring, community engagement and the middle years of schooling. Currently, Suzanne is the Academic Coordinator for the Faculty of Education at Queensland University of Technology's Caboolture campus, which is located one hour north of Brisbane, Australia. She is project leader for a large Department of Education, Employment and Work Relations grant and her PhD study has been submitted for examination.