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Will They Know Enough?: Pre-Service Primary Teachers' Knowledge Base For Teaching Integrated Social Sciences

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Abstract: A significant issue in primary teacher education is developing a knowledge base which prepares teachers to teach in a range of subject areas. In Australia, the problem in primary social science education is compounded by the integrated nature of the key learning area of Studies of Society and Environment (SOSE). Recent debates on teaching integrated social sciences omit discussions on the knowledge base for teaching. In this paper, a case study approach is used to investigate primary pre-service teachers' approaches to developing a knowledge base in designing a SOSE curriculum unit. Data from five teacher-educators who taught primary SOSE curriculum indicates that novice teachers' subject content knowledge, as revealed through their curriculum planning, lacked a disciplinary basis. However, understanding of inquiry learning, which is fundamental to social science education, was much stronger. This paper identifies a gap in the scholarship on teaching integrated social science and illustrates the need to support and develop primary teachers' disciplinary knowledge in teacher education.

Introduction

Pre-service teacher education in Australia is regularly in the media spotlight as the quality of teaching and its impact on student outcomes is considered by key stakeholders (Buckingham, 2007). Darling Hammond (2008, p. 1321) argues that teacher education should focus on “close connections between theory and practice, course work and clinical work” to develop a practical, professional knowledge base for teaching. Recommendations for teacher education curriculum in the USA and Australia alike assert the importance of subject matter, based on the disciplines along with knowledge of learners and skills of teaching (Darling-Hammond & Bransford, 2005; Teaching Australia, 2007). Given that the quality of pre-service teacher education impacts upon subject knowledge for teaching, this paper draws on a case study to investigate further those factors that influence the knowledge base of pre-service primary teachers. In particular, it examines the ways in which a cohort of pre-service teachers conceptualise their knowledge-base for planning and teaching integrated social sciences. In doing so, this paper aims to contribute to an increasingly significant, yet under theorised, aspect of teacher education in the core disciplines in a broader context of national curriculum development in Australia.

The capacity to conceptualise and teach subject matter by making it accessible to learners is critical to teachers' work. In the post-fordist knowledge society, as Hargreaves puts it, teachers are “knowledge society professionals” (2003, p. 3) who are “catalysts” for the knowledge society (Hargreaves, 2003, p. 9). Moreover, it can be

argued that the application and use of knowledge in the classroom is arguably the most important aspect of primary and secondary teachers' work. Bransford, Darling-Hammond and LePage (2005) assert that "[to] make content accessible to learners, teachers need flexible understanding of subject matter married to an appreciation for how students learn" (p. 36). This challenge confronts all novice teachers, but the scope of integrated social science education appears to pose special difficulties.

This paper proceeds as follows. First the controversial nature of integrated social sciences or SOSE as a Key Learning Area (KLA) in Australia is briefly explored as it presents significant challenges for social science teacher-educators. Second, the epistemological question of what is meant by "knowing" something in terms of content or process for teaching is raised. Shulman's (1986, 1987) theory of the knowledge base for teaching which forms the interpretive framework for this case study is briefly explored. Third, the nature of subject expertise and its relevance in primary education is considered. Fourth, the research on primary teachers' knowledge in social science in the USA, UK and Australia is explored to contextualize the current study. Analysis of data gathered for this case study is followed by a discussion of findings and recommendations for social science teacher-education emerging from the case study. The study is theorized within Shulman's (1986) knowledge base for teaching and tests the applicability of Shulman's theory for primary education.

The problematic nature of SOSE

Widely known in the USA as "social studies", in Australia integrated social science education was conceptualised in the 1990s as Studies of Society and Environment (SOSE) when constituted by the Australian Education Council as one of eight Key Learning Areas (AEC, 1994a; 1994b). Originally conceived in the national structure as five conceptual strands and one process strand, SOSE is a nationally mandated KLA in all educational jurisdictions. Since its inception, however, the strands have been reconfigured by the states in various forms, with New South Wales and Victoria teaching History as a separate school subject. In Queensland, SOSE comprises four conceptual strands, underpinned by discipline-specific concepts and core processes such as investigation, communication, participation and reflection. These processes underpin inquiry-based learning in SOSE. The Queensland SOSE syllabus (QSCC, 2000) integrates single discipline studies including history, geography, economics, sociology and politics, multidisciplinary studies such as environmental studies, Aboriginal and Torres Strait Islander studies and Asian studies, and integrated studies such as civics and citizenship.

The wide scope of SOSE is still disputed. In a new statement of the goals for schooling in Australia the Council for the Australian Federation (2007) asserted that SOSE should be abolished and the disciplines of history, geography and economics be reinstated. Some education commentators continue to promote the view that SOSE is an "amorphous, politically correct blancmange" (Donnelly, 2008). However, at the time, the decision to create an integrated social science area was a pragmatic decision (Marsh, 2008). The emphasis on developing generic, life-long skills such as "communication" and "thinking" in SOSE challenges teachers to rethink how they plan for integrated

learning (Murdoch, 2007). Moreover, teachers' knowledge in SOSE needs to encompass the content and skills base of several disciplines. This case study identifies concerns about the intellectual quality and depth of primary SOSE units as evaluated and perceived by university-based teacher educators.

Theory of the knowledge base for teaching

Prior to considering the knowledge base for teaching it is useful to explore what it means "to know" something. Deng and Luke (2008) propose three conceptions of knowledge based on their examination of several disciplinary and epistemological knowledge classification schemes. First, the disciplinary conception of knowledge describes canonical knowledge in the established disciplines. Second, the practical conception of knowledge represented by procedural knowledge derives from the wisdom of practice. The third form of knowledge is the experiential conception of knowledge based on Dewey's (1916) notion that knowledge is located in and based on human experience. While there are other ways of knowing, for example, scientific or aesthetic ways of knowing (Deng & Luke, 2008), these three different ways of knowing provide a useful interpretive framework to conceptualise pre-service primary SOSE teachers' sources of knowledge.

Deng and Luke's (2008) conceptions of knowledge and what it means for teachers "to know" something raises broader questions of the purpose of this knowledge and what kind of knowledge is important in terms of student engagement (McMahon & Portelli, 2004). While contemporary curricula promote the mantra of "life-long learning" (QSCC, 2000; QSA, 2006) the precise nature of that knowledge and its purpose is worth exploring. Jurgen Habermas' theory of 'knowledge-constitutive interests' as the technical cognitive interest, the practical interest and the emancipatory or critical cognitive interest (Habermas, 1968) is a useful way to explore knowledge for teaching and its impact on student engagement. The technical form of knowledge is descriptive, predictive knowledge based on observable events (Habermas, 1968). The practical interest (or hermeneutic knowledge) is interpretive knowledge which is mediated and "derived from the interpreter's initial situation" (Habermas, 1968, p. 309). The critical or emancipatory interest is one which seeks to transform the current condition, where, through self-reflection, "frozen relations of dependence ... can in principle be transformed" (Habermas, 1968, p. 310). The emancipatory knowledge interest relates to McMahon and Portelli's (2004) conceptualization of critical-democratic student engagement "which recognises existing inequities and believes in the possibilities of rectifying them" (p. 73). While SOSE draws on all three knowledge interests, it is the critical or emancipatory form of knowledge which will encourage students to develop the knowledge and skills to eventually transform the social condition. It is argued that contextualising the knowledge base for teaching in the wider discourse of the social purposes of schooling and the nature of student engagement heightens the importance of the disciplinary basis of knowledge for teaching in light of the move towards a national curriculum in history (Media Release, 30/1/2008; Ferrari, 2008).

The complexity of teachers' knowledge was identified by Shulman (1986, 1987) who challenged the excessive focus on skills at the expense of subject knowledge in

teacher education. Shulman's theory of the knowledge-base for teaching categorized the domains of content knowledge as subject matter content knowledge, pedagogical content knowledge and curricular knowledge. Subject content knowledge refers to propositional knowledge and an understanding of the structure of the discipline. Pedagogical content knowledge is a "second kind of content knowledge" which refers to "the particular form of content knowledge that embodies the aspects of content most germane to its teachability" (Shulman, 1986, p. 9). Pedagogical content knowledge is particularly important because it blends content and pedagogy in a distinctive way that distinguishes content specialists from teachers. Curriculum knowledge is strategic knowledge of the full range of "materials and programs that serve as 'tools of the trade' for teachers" (Shulman, 1987, p. 8).

Shulman's conceptualizations of the knowledge base of teaching, particularly pedagogical content knowledge, has been very influential in studies of the knowledge base of secondary teachers (Poulson, 2001). This raises an important question about the role of pedagogical content knowledge for primary teachers as their work integrates numerous subject areas. Shulman (1987) questioned the applicability of subject content knowledge as the central basis of knowledge for primary teachers, acknowledging that the relationship between subject knowledge and pedagogical content knowledge was far more complex for primary teachers who taught numerous subjects (Grossman, Wilson & Shulman, 1989). Reflecting this concern, in her analysis of UK studies of primary teachers, Poulson (2001, p. 47) concluded there "seems to be little evidence of a clear relationship between a well-developed formal academic knowledge of particular subjects and effective teaching in the primary phase of schooling", despite the emphasis in both research and UK government initiatives (such as Department of Education & Science Circular 14/93) on the importance of subject matter knowledge for teachers (Turner-Bisset, 1999).

Perhaps the key is that primary teachers, in contrast to secondary teachers, are teaching subject knowledge that draws on disciplinary knowledge, but they are not teaching the discipline, per se; rather, they are teaching "topics" or processes associated with learning in mathematics, science or environmental education. Shulman's conceptualisation of the knowledge base for teaching is supported by the *doctrine of disciplinarity* (Tanner & Tanner, 1995; Davis, 1998) which holds that teachers must understand the content of the disciplines that underpin school subjects such as SOSE, rather the content of the school based subject (Deng, 2008). This approach poses difficulties for teachers' professional understanding of content "which tends to overlook what is involved in knowing the content of a school subject for teaching" (Deng, 2008, p. 94). Despite reservations of the applicability of Shulman's theory of the knowledge base for primary teachers, the importance of subject knowledge cannot be discounted.

Subject expertise: A matter of equity

Questions about the subject expertise of elementary teachers have been highlighted in the literature for at least the last twenty years. In 1986, Feiman-Nemser and Buchmann's research on the first year of teacher preparation identified that elementary teachers understood there were gaps in their subject knowledge and they

relied on memories of their own schooling, textbooks and commonsense to make up for the lack of subject knowledge. Clearly, the teacher's knowledge of subject matter is essential to teach for subject matter understanding (McDiarmid, Ball & Anderson 1989). More recently, debates about teachers' subject knowledge in terms of "teacher capacity" note that differences in teachers' knowledge of substantive subject matter result in discernible differences in students' learning (McDiarmid & Clevenger-Bright, 2008). The diversity of students' backgrounds and interests highlights the importance of all students having equitable access to knowledge. "This view of the role of teachers' subject matter knowledge overlaps with the idea of teachers' responsibilities for providing equitable access to knowledge" (McDiarmid & Clevenger-Bright, 2008, p. 141). It can be argued that primary teachers with weak subject knowledge may not be fulfilling their social responsibilities.

Primary teachers are distinctive from the majority of their secondary school colleagues in that they are generalist teachers, usually responsible for teaching the full range of key learning areas in the school curriculum. However, in Australia, specialist knowledge is likely to become increasingly important, even in primary school. In 2008 the Australian federal government announced proposals to implement a national curriculum from kindergarten to year 12 in the key learning areas of English, mathematics, the sciences and history to be implemented in 2011 (Media Release, 30/1/2008; Ferrari, 2008). This initiative highlights the need to support and develop pre-service SOSE teachers' disciplinary knowledge base, particularly history, from primary onwards.

Subject knowledge in primary education

The issue of teachers' knowledge has become accepted as one of the key aspects to improving educational practice (Poulson, 2001). This view is based on the widely held assumption "that teachers who know more teach better" (Cochran-Smith & Lytle, 1999, p. 249). The multi-faceted nature of primary education, however, means that teaching school subjects is but one aspect of primary teachers' work.

The problem of subject knowledge in integrated social science in Australia is reflected in the USA. Thornton (2001) raises the question of how much depth and breadth in the social sciences teachers need to teach primary school students, and which of the social sciences are essential or peripheral to the teaching of social studies. Thornton asserts that coursework that promotes teaching social science methods and contextualized to the teaching of particular subject matter is needed.

Similarly, the lack of a disciplinary knowledge basis in primary teachers' subject knowledge has raised concerns in the teaching of history and geography in the United Kingdom (Aubrey, 1997; Wragg, Bennett & Carre, 1989 cited in Poulson, 2001). Newton and Newton (1998) adopt Wilson's (1991) assertion that history teachers need to know their subject well and the subject-specific ways of teaching it. History teachers require a detailed knowledge of events, be able to differentiate between different aspects of an event, be able to qualify accounts of events and be able to relate events to each other (Wilson 1991). Turner-Bisset (2001a) points out that there is little research on primary history teaching in the UK because history is not taught in all primary schools

and is often taught by non-specialists. History education in primary school is poorly supported in teacher education. For example, Taylor (2008) asserts that in most Australian primary teacher-education programs history education comprises a very small component of a four-year degree. In terms of geography, Martin's (2005) research into how primary teachers conceptualise geographical education identified a gap between what pre-service primary teachers said they knew about geography and what they actually understood about geography. The lack of disciplinary knowledge in geography may be linked to the structure of teacher-education courses in the UK. Catling (2006) has raised major concerns that the very limited teaching time in geography for UK primary trainee teachers has resulted in significant "weaknesses in their knowledge and understanding of both the subject and its teaching that need to be addressed" (p.108).

Such studies of primary teaching in the UK indicate that the social science curriculum is discipline-based, even though not all schools teach geography or history in the primary years. In Australia there appear to be no systematic studies of primary teachers' subject knowledge of SOSE or social science education in the primary years, even though "social studies" was taught in Australia from the mid-1970s (Marsh, 2004). The following studies review primary teachers' knowledge of areas associated with SOSE including environmental education and Aboriginal Studies.

In their study of environmental education in pre-service teacher education of Queensland primary teachers, Cutter-Mackenzie and Tilbury (2001) found that student teachers' knowledge of facts, principles and concepts about environmental education was weak. In further research with Queensland primary school teachers Cutter-Mackenzie and Smith (2003, p. 497) found teachers "are likely to be functioning at a 'knowledge' level of ecological illiteracy and/or nominal ecological literacy". Efforts to address this issue were made in a compulsory education for sustainability unit conducted at the University of New England (Taylor, Kennelly, Jenkins & Callingham, 2006). A socio-critical approach to environmental education for primary pre-service teachers was successful in improving student-teachers' knowledge of a range of environmental issues, raised awareness of important local and global environmental issues and included programming for integrating environmental education into the primary curriculum. Taylor *et al.* (2006) concluded from post-instruction survey results that compulsory education for sustainability units addressed the concerns about ecological illiteracy raised by Cutter-Mackenzie and Smith (2003).

Similarly, targeted pre-service primary teacher education has improved the teaching of Aboriginal Studies. In a critical evaluation of the impact of mandatory Aboriginal subjects on pre-service primary teacher education, Craven, Marsh and Mooney (2003) concluded that pre-service teachers who undertook mandatory subjects felt more capable and confident of teaching Aboriginal students.

The research reviewed from the UK, USA and Australia highlighted concerns over primary teachers' subject knowledge, but in each of these countries, social science education takes a different form and emphasis, making it difficult to draw useful comparisons. The distinctive characteristics of SOSE in Australia highlight the need for research in the area of teachers' knowledge. This study aims to address the gap in scholarship on primary teachers' knowledge base for teaching integrated social science.

Method

Background

The study was conducted in a thirteen week curriculum unit titled 'SOSE Curriculum and Pedagogies' at Queensland University of Technology in 2006 with 220 students enrolled. The unit was compulsory for all primary students in the Bachelor of Education. It was their only opportunity to engage with the SOSE curriculum, pedagogy and assessment during a four year teacher education program. In their first year, students completed a foundations unit focusing on citizenship but no discipline-specific studies were required.

Purpose and design of the study

The aim of the study was to investigate primary pre-service teachers' sources of knowledge in SOSE. An instrumental case study approach (Creswell, 2007) was used to gather data because it provided insight into issues pertaining to the knowledge base for teaching integrated social science (Silverman, 2005). As such the case presented a unique opportunity to investigate this issue by gathering teacher-educators' views of pre-service teachers' approach to curriculum design. Investigations through a case study approach have yielded insightful accounts of teachers' thinking and practice (Calderhead, 1996).

Research participants

The 'SOSE Curriculum and Pedagogies' unit was taught and coordinated by the researcher and a team of four tutors (n=5). All had subject expertise and teaching experience in integrated social science education curriculum in either primary or middle school settings. Pseudonyms have been used to refer to the participants in this study.

The case study was initiated through an email sent to the tutors before the end of the marking period, detailing the scope of the study and requesting written reflections on the unit based on a short set of questions. The reflections were followed up by a group meeting held by the researcher with two respondents and individual discussions held with the other two respondents. Selected points from the reflections were discussed and notes taken during discussion. Although data collection in case study research may involve multiple sources of information (Creswell, 2007), it was limited to written reflections and follow-up individual or group discussions in a five-week period after students were assessed, as these methods offered a unique perspective on pre-service teachers' sources of knowledge.

Structure of the SOSE unit and assessment

Contextual conditions pertinent to this case study (Yin, 2003) offer useful insights to the issue of pre-service teachers' knowledge. The unit was structured as an

introduction to the Queensland SOSE syllabus and approaches to teaching integrated social science. Weekly lectures and tutorials were held on topics such as the nature of SOSE, the disciplinary basis of each of the four strands in the Queensland SOSE curriculum, using the inquiry process, values education, teaching strategies and assessment, unit planning and evaluating resources. The importance of inquiry learning and higher order thinking activities were emphasized. For their assessment, students were assessed first, through an essay which was an academic justification for a chosen teaching topic in SOSE, and second, through designing a SOSE curriculum unit suitable for primary students based on the Queensland SOSE syllabus. Students were taught to structure the unit using one of the models of social inquiry (Hoepper & MacDonald, 2004) and the principles of inquiry-based learning.

Assessment practices endeavour to align learner, learning and assessment (Klenowski, 2007) and these tasks aimed to diagnose and monitor progress in conceptualizing SOSE teaching topics, curriculum design and assessment practices (McInnis & Devlin, 2002). In the case study the purpose of assessment was twofold: one, assessment provided a way to get feedback from student-teachers about what they had learned about SOSE content, curriculum and pedagogy, and two, the task was a way to develop pre-service teachers' skills in devising SOSE curricular and assessment practice in the classroom. Experiential tasks such as these are based on the principles of authentic assessment (Wiggins, 1989, 1991) where the tasks test intellectual ability and probable performance in the field (Klenowski, 2008). It aimed to empower pre-service teachers as future educators with a commitment to subject-specific knowledge in SOSE and pedagogical content knowledge in inquiry-based learning.

Data analysis

The data from the written reflections (R) was read and correlated with the data which emerged from the follow up discussion and interviews (D) as recorded by the researcher. The significant quotations from each tutor were identified and numbered. Each of these is indicated in the report that follows by pseudonym, data type and number: for example, "Hugh (R)#1" refers to the first quotation from Hugh's reflections and "Hugh (D)#1" refers to the first quotation from Hugh in follow-up discussion. The data were read, coded and analyzed by the researcher for emerging key themes related to Shulman's (1986, 1987) domains of the knowledge base for teaching. Key themes through holistic analysis of the case (Creswell, 2007) were approach to content, choice of SOSE topic, sources of content, use of teaching strategies to develop social science skills, and use of inquiry learning. Lessons learned (Lincoln & Guba, 1985) enabled generalizations to be drawn about disciplinary and experiential conceptions of knowledge (Deng & Luke, 2008) and insight into this cohort of primary pre-service SOSE teachers' sources of knowledge.

A knowledge base in primary SOSE

Approach to content

Each of the participants reported that in general, the primary student-teachers appeared to have a limited grasp of the content of their SOSE topics and that the topics were treated quite superficially. Hugh commented that students had approached the content in a “haphazard and laissez-faire manner” resulting in “a number of examples [that] show ... both content and specific knowledge within areas of content were neither deep in reasoning or wide in understanding” (Hugh (R)#1). He cited specific examples where factual errors had been made, such as a unit on the Australian flag where key areas in the development of the flag and symbolism were incorrect, and another where environmental issues pertaining to Fraser Island had been presented in a one-sided, controversial way. According to Elsie, “[m]any seemed to have had a fairly limited/cursory experience of SOSE from Prac [teaching practice] and were unsure of what SOSE actually was” (Elsie (R)#1). She gave the example of two units on “Asian culture” with no attempt to differentiate between the cultures of China, Japan or Hong Kong, culminating in a ‘day’ where students attended school in a particular ‘Asian’ dress but did not attempt to demonstrate deeper cultural understanding or intercultural awareness (Elsie (R)#1).

Topics chosen

While there was no attempt to conduct a survey of the SOSE topics each of the respondents cited popular topics on environment and culture. Environmental topics included water, endangered species, climate change, recycling, Fraser Island, land management, pollution, and the Great Barrier Reef. Topics on culture included Australian identity, multiculturalism and cultural diversity, friendship, heroes and “other cultures”. Sue reported that units on multiculturalism and multicultural Australia had little substantive content (Sue (R)#1). Tina noted that several units on multiculturalism specifically referred to footage of the 2005 Cronulla riots that had been shown during the lecture (Tina (R)#1). Topics for younger students included identity, families and family diversity. These topics integrated understandings from several of the disciplines and areas of study underpinning SOSE.

In comparison, only a few topics related to history. History topics included: the gold rushes, the “discovery of Australia”, ANZAC Day and the Eureka Stockade. Sue commented that the historical topics in her group were chosen by the “poorer” students and that the history topics “were not made problematical and showed little reading on the topic” (Sue (R)#2). In Hugh’s view, historical understanding was based on popular culture: for example, students had no in-depth understanding of topics such as ANZAC day or why Australia was involved in war (Hugh (R)#2).

Although the importance of indigenous perspectives in SOSE had been emphasised, Cate mentioned that all but two of her thirty-five students “said they were fearful of doing this ‘topic’ because they felt they might ‘do it wrongly’” (Cate (R)#1). Other participants did not mention that indigenous studies were a topic of choice amongst their students. Tina singled out a unit on democracy for special mention (Tina (R)#2), and Sue stated that there were some interesting topics selected “largely by students who

got good results” on refugees, land rights, child labour, history of toys and community issues/citizenship (Sue (R)#3). However, she concluded that “the students’ ‘lack of general knowledge impedes the choice of topic they make” (Sue (R)#4).

Sources of content

In SOSE, the academic disciplines and everyday knowledge, or “common sense”, are both held to be important sources of curriculum knowledge (Gilbert, 2004, p. 81). This understanding aligns with canonical knowledge derived from the disciplines and experiential conceptions of knowledge derived from human experience (Deng & Luke, 2008). The disciplines are the most important sources because “they provide precise and systematic ways of viewing the world” (Gilbert, 2004, p. 82), yet “the role of the taken-for-granted discourses of common sense in the way we think about the world” (Gilbert, 2004, p. 82) cannot be discounted. As the following data suggests, pre-service SOSE teachers drew on both sources of knowledge for their curriculum content.

The importance of discipline specific knowledge was reported by three participants who had identified the senior secondary background of their student-teachers. Cate reported that “students who had recently done senior History, Geography, Economics/Business focused on Key Questions [KQ] that centered on these disciplines then extended them to fulfill more CLOs [core learning outcomes]” (Cate (R) #2). She concluded that the “content depth and coverage” for these topics was much better than the others, “particularly if the student expressed how much they had enjoyed that subject at school” (Cate (R) #3). Hugh concurred that if the student had “loved” senior study they were usually motivated to find out more for their SOSE unit (Hugh (D)#1). Out of her 48 students, Sue identified that 13 had no social science background at all. She commented:

We need to acknowledge that we are starting from a very low knowledge base. I have encouraged my students to choose as a topic for their unit an area where they have no background knowledge so they can get a broader view, but I think most of them went back to what is familiar to them (Sue (R) #5).

In follow-up group discussion it emerged that the disciplinary basis of SOSE was not included in the students’ university course, and therefore some of the primary student-teaches “have not done the disciplines since Year 7” (Sue (D)#1 & Elsie (D)#1).

Instead of the disciplines, Cate’s students drew largely on common sense as a curriculum source (Gilbert, 2004). This was a cohort of a significant number of mature-age students and others who wanted a career change. These students believed that in contrast to Mathematics, English and HPE where the content had to be learnt, in SOSE, subject knowledge could be learnt “anecdotally” (Cate (R)#4). Her students “realized that process needed to be learned, but they thought they already knew the content” (Cate (R) #4). These comments may reflect the longer life experience of her students; several were single parents of school-age children who thought they “ ‘could already teach a class, they just had to ‘get through the course’, hence there was not much interest in really stretching their knowledge” (Cate (R)#5).

Tina noted student-teachers preferred to rely on internet sources rather than tertiary sources for their subject knowledge. Lack of conceptual content knowledge

resulted in some topics being “trivialized” (Tina (R)#4) and poor understanding of “the values perspective in terms of teaching for a shift in attitude or action” (Tina (R) #5). A superficial SOSE knowledge base was also indicated by Hugh who observed that all his students based their knowledge on basic secondary sources (such as would be available to school students) and were not prepared to research further due to limited knowledge of how to do research and poor research skills (Hugh (D)#3; Hugh (D)#4).

Reluctance to research primary SOSE topics to supplement sources of curriculum knowledge was evident. This data suggests that major sources of primary student-teachers’ subject knowledge in SOSE was common knowledge, personal experience, prior school-based learning in the disciplines, internet sources and basic secondary sources. Pre-service teachers drew on both the academic disciplines and “common sense” sources of curriculum knowledge for the actual content, yet their knowledge-base lacked depth and complexity.

Teaching to develop social science skills

Despite gaps in discipline-specific knowledge, some student teachers in this cohort were aware of the importance of teaching core social science skills. Cate had taught her students how to structure and support the research process in SOSE with the result that many of her students had used this strategy well in their units (Cate (R)#6). However, some students who had not attended the sessions on how to teach research skills “had students ‘on-line doing research’that was the level of their pedagogy” (Cate (R)#7).

The use of teaching strategies attracted similar criticism. Sue expressed deep concern that her students had not attempted to teach discipline-specific skills with appropriate scaffolding. For example, many had students “do a timeline”, or “conduct a survey of their parents” (Sue (R) #6), but provided no scaffolding to teach this skill. According to Hugh, research skills were not being taught because the student-teachers themselves lacked this ability (Hugh (D)#4). He criticized the use of teacher-directed open class discussion based on the assumption that students already had some knowledge of the topic, citing lack of well-formulated discussion questions (Hugh (R)#3). A lack of creativity and imagination in some SOSE units was attributed to a lack of content knowledge (Hugh (R)#4). Hugh observed:

When people know their subject they are usually more comfortable in it and able to think of more abstract ways and [use] teaching pedagogies to implement new knowledge into the classroom (Hugh (R) #5).

While a variety of teaching strategies were used in SOSE units, pre-service teachers had a tenuous grasp of how to teach social science skills which could be attributed to their lack of confidence with the subject knowledge.

Use of inquiry learning

Inquiry-based learning is an important component of social science education (Marsh, 2008) because it builds on students’ curiosity and develops logical, rational and sustainable ways of thinking (Gordon, 2000). Student-teachers were instructed to use an

inquiry approach to develop pedagogical content knowledge and embed understanding of inquiry-based teaching. Most students used an inquiry approach and planned for practical activities that showed new, critical understandings of the issue (Tina (R)#8). Many SOSE units included a range of student-centred, inquiry-based activities that built up understanding of concepts such as diversity and democracy (Tina (R)#6; (Elsie (R)#5). According to Elsie, “[t]here seemed to be a high correlation between understanding of the inquiry model and excellent approaches to content and assessment” (Elsie (R)#8).

However, problems were identified with sequencing activities appropriately and relating them to a particular phase of inquiry (Tina (R)#9). All the tutors commented that their students had problems sequencing the activities in their units, which meant that content was sometimes “taught” by the teacher after the activity had been concluded.

My most common comment was, ‘Will they know enough?’ because they expected students to have a really high level of prior knowledge or be able to glean from the activities the content they expected students to know (Elsie (R) #3).

Poor sequencing of learning activities (Elsie (R)#6) seems to imply poor understanding of concepts related to the topic and an insufficiently well-understood core knowledge base. Sue noted that students had misinterpreted the initial stages of an inquiry, when students should be introduced to the concepts of the topic and “many went straight into research mode” (Sue (R)#8). Furthermore, the interactive style of pedagogy favoured by some students came “at the expense of content delivery” (Elsie (R) #2).

Evidence from SOSE teacher-educators indicated that the strength of this cohort of primary teachers’ subject knowledge for teaching related to pedagogical content knowledge, as indicated through the use of inquiry-based learning. In contrast, subject-specific knowledge related to key concepts was not consistently demonstrated through the activities, indicating, in some cases, a weak understanding of core subject knowledge.

Discussion

This case study of primary student-teachers’ SOSE units drew on data gathered from the five teacher-educators associated with the teaching and assessment of a SOSE curriculum unit. Analysis of key themes revealed that many student-teachers drew on their own secondary school background for subject knowledge of their SOSE topics. Students relied on topics they knew; some perceived that they already had sufficient personal experience and general understanding of SOSE issues and topics so that further in-depth research to support or develop their subject knowledge was not undertaken. It appears that disciplinary conceptions of knowledge were relatively weak compared to experiential conceptions of knowledge (Deng & Luke, 2008). Primary student-teachers did not “see” that an academic knowledge of the topic or the social science discipline that underpinned the topic was necessary. While it is acknowledged that primary student-teachers start with a low knowledge base (Schultz, 2006; Lawless, 2003 and Turner-Bisset, 2001b), the lack of subject matter expertise raises broader questions whether poorly prepared primary teachers are capable of providing equitable access to knowledge

in integrated social science. Furthermore, lack of subject expertise may result in an over-emphasis on the technical knowledge interest at the expense of a critical or emancipatory approach to social science (Habermas, 1968).

While a wide variety of SOSE topics was selected, few were discipline-specific. The majority of topics related to environmental education, cultural studies and civics and citizenship. The discipline specific skills that underpin social science education did not feature largely in the SOSE units, indicating perhaps that primary student-teachers did not consider the disciplines that underpin SOSE to be important in their teaching plan.

This raises a significant question: how important is subject knowledge based on the disciplines for integrated social science in primary school? Shulman (1987) was reluctant to promote the importance of disciplinary-based knowledge for primary teachers in comparison with secondary teachers whose work is much more closely aligned with the disciplines. This case study indicates that primary student-teachers struggle with subject-specific knowledge, possibly because they may have neither a disciplinary background in the social sciences nor do they attach importance to conceptual understanding as the basis of their teaching in SOSE. However, despite perceived deficits in subject knowledge, student-teachers readily embraced constructivist, inquiry-based teaching approaches.

Conclusion

In the absence of systematic studies on the teaching of primary integrated social science education in Australia, this analysis has documented a cohort of SOSE student-teachers' approach to two sorts of knowledge: one, the content or subject knowledge for SOSE and two, pedagogical content knowledge through the use of inquiry approaches. Lessons learned from the case study demonstrated that primary SOSE student-teachers' subject knowledge is unlikely to derive from discipline-specific knowledge or from research into the issue or wide reading. Rather, "common sense" discourses (Gilbert, 2004) appear to be more widely held sources of curriculum knowledge for pre-service primary SOSE teachers. In comparison, their pedagogical content knowledge through inquiry-based learning is more secure. Further research into the sources of subject knowledge and the importance of discipline-specific knowledge for primary teachers is needed to further substantiate the findings, and to contextualize these findings in the wider discourse on the social purposes of schooling. Disciplinary knowledge will be essential in primary SOSE when a national History curriculum is implemented in Australia in 2011. The implications for teacher education are twofold: first, if primary social science is to be based on a more rigorous understanding of important social issues and topics, it is important that mandatory foundation studies incorporate a stronger disciplinary basis. Second, social science curriculum studies should focus on the disciplines with a view to teaching some of the skills associated with the social sciences. If teachers are to be catalysts for change in the new knowledge society (Hargreaves, 2003) these measures would enhance the status and standard of integrated social science education.

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