

Student teachers' views of their experiences in a Bachelor's programme



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Background: It is widely accepted that the quality of schools depends on the quality of teachers. Understanding what occurs while learning to teach is an important pursuit for acquiring a sense of the quality of teachers. The initial development of teachers is a critical point from which to activate such understanding.

Aim: This study, therefore, examines the ways in which pedagogic content knowledge is developed within experiences that relate to initial teacher education programmes. *Pedagogic content knowledge* is a concept describing a form of knowledge related to transmitting subject matter knowledge to learners.

Setting: A qualitative study was conducted with a cohort of participants in the final year of a bachelor's degree programme.

Methods: Data generation ensued from focus group discussions, complemented by questionnaire data. The study analysed data categorised according to themes.

Results: Findings demonstrate that the participants found their initial teacher education programme to have had positive *and* negative influences with regard to the development of pedagogic content knowledge. Administrative duties, adapting to school contexts, relationships with people of influence (such as lecturers during initial teacher education and mentor teachers), teaching practice (which had the most profound influence on classroom practice) and professional knowledge and skills as taught during initial teacher education were all factors that had an impact on participants' experiences in developing their pedagogic content knowledge.

Conclusion: This paper argues for the need to rethink the structure of initial teacher education programmes in order to better facilitate the development of pedagogic content knowledge.

Keywords: teacher education; pedagogic content knowledge; student teachers; classroom practices.

Introduction

Understanding what occurs in the process of initial teacher preparation is crucial to how student teachers are prepared to teach effectively. In particular, student teachers need to acquire pedagogic content knowledge in learning to teach. Pryor et al. (2012) note that a key challenge for initial teacher education programmes is developing complex, multifaceted skills. This is conditioned by teaching practice as it provides student teachers with the appropriate skills to develop their pedagogic content knowledge in classrooms with learners (Pryor et al. 2012). Drawing on data collected from a cohort of participants in the final year of a bachelor's degree programme at a university, this article examines the ways in which pedagogic content knowledge is developed through experiences that relate to initial teacher education programmes.

This article begins with a review of literature that identifies factors which shape the experiences of initial teacher education together with a more detailed discussion of pedagogic content knowledge and how it can develop. Particular attention is paid to the notion of pedagogic content knowledge developed by Shulman (1986, 1987). A brief discussion of the methodology ensues, followed by the presentation of findings and conclusions.

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Framing initial teacher education in South Africa

Teacher education providers in South Africa design their programmes according to national government policy. With regard to the participants in this study, their programme was informed by the Norms and Standards for Educators (NSE) (Department of Education [DoE] 2000).¹ The NSE made provision for qualifications that would enable graduates to enter the teaching profession in South Africa. Without obtaining a qualification that complies with the NSE (and currently Minimum Requirements for Teacher Education Qualifications [MRTEQ], see Footnote 1), an individual would not be eligible to register with the South African Council of Educators (SACE) or be recognised as a professional teacher. The qualification provided for in the NSE that is relevant to the participants in this study is the Bachelor of Education (BEd) specialising in the Foundation Phase (DoE 2000:24, 27). Moreover, the NSE expects teachers to be endowed with seven roles (DoE 2000:13–14), one of which is a learning mediator (DoE 2000:15–16). It is this particular role which encapsulates pedagogic content knowledge. As an example, one of the practical competences for a learning mediator exemplifies pedagogic content knowledge; '[p]reparing thoroughly and thoughtfully for teaching by drawing on a variety of resources; the knowledge, skills and processes of relevant learning areas; learners' existing knowledge, skills and experience' (DoE 2000:15). The NSE, however, is not prescriptive about the process by which such competences might be developed.

Teacher education providers are afforded autonomy with regard to the ways in which they choose to develop these competencies in their programmes. The prescription is only to develop the competencies as part of the role of learning mediator in the BEd programme. Moreover, the BEd programme must comprise 480 credits, with graduates exiting with a National Qualifications Framework (NQF) level 6 (DoE 2000:24). For the Foundation Phase specialisation, the NSE further expects programmes to 'include disciplinary bases of content knowledge, methodology and relevant pedagogic theory' as prescribed by the national curriculum (DoE 2000:27). This means that the BEd Foundation Phase programme that complies with the NSE ought to include expertise in the development of early literacy (particularly reading), early numeracy and life skills (DoE 2000:27). Beyond the number of related credits, though, the NSE does not prescribe the ways in which this expertise ought to be developed. The NSE does, however, indicate that school experience should be 'integrated into the programme, rather than being a separate "add-on."' It is a structured teaching and learning experience with some form of observational assessment' (DoE 2000:32).

In this article, we present the experiences of the ways in which teacher expertise was developed and how school experiences were integrated from the perspective of a select

group of student teachers. From this, we aim to expand on literature that documents the ways in which BEd programmes are actually experienced by those who register for them. We do not expect to make definitive claims about what ought or ought not to be occurring in initial teacher education programmes or teacher development reforms. We do, however, expect that data and findings presented here provide those who are planning curricula for the spectrum of teacher development programmes with insight into how pedagogic content knowledge develops.

For the purpose of this article, pedagogic content knowledge functions as a lens for examining student teacher experiences of gaining expertise in developing early literacy and numeracy skills in learners, as expected by the teacher education policy. Shulman deployed pedagogic content knowledge as a method of observing and 'studying those who were just learning to teach' (2004:88). Pedagogic content knowledge is the product of experiential learning. Shulman's conceptualisation of pedagogic content knowledge affords a number of insights and perspectives that are critical to the argument in this article. Pedagogic content knowledge, for example, is an intricate and complex thinking tool, functioning in a manner best described as 'prismatic'. It is not a simple lens through which the process of developing competency can be scrutinised. Instead, pedagogic content knowledge offers multiple and shifting views of the issues at stake. Pedagogic content knowledge has demonstrated (and continues to demonstrate) the power to unlock conceptions of teaching and knowledge that have become entrenched. It is critical to outline the value of pedagogic content knowledge for making sense of experiences related to initial teacher education. The first context for learning to teach is the university or campus-based experience. The understood goal is that the university would provide the theory, skills and knowledge; and the school, via teaching practice, would subsequently provide the context for applying, practising and integrating these theories, skills and knowledge (Allen 2009).

Grossman (1990) contends that pedagogic content knowledge consists of four critical components: (1) conceptions of purposes for teaching subject matter, (2) knowledge of students' understanding, conceptions and misconceptions of particular topics in a subject matter, (3) curricular knowledge and (4) knowledge of instructional strategies. In essence, pedagogic content knowledge refers to organising content for a particular learning domain or discipline (Shulman 1987). Becoming a teacher is inextricably tied to learning about the ways in which to transform and transfer content (Park & Oliver 2008; Tsui 2003). This article engages with the ways a select group of fourth-year BEd student teachers specialising in the Foundation Phase are being exposed to organising the content for related learning domains or disciplines.

Pedagogic content knowledge is a dynamic, rather than static, aspect (Abell 2008) of teacher knowledge moulded through experience and beliefs. Conceptions of purpose for

1. DHET (Department of Higher Education and Technology) has since replaced the NSE with the Minimum Requirements for Teacher Education Qualifications (MRTEQ) (DHET 2011, 2015).

teaching subject matter knowledge of learner understanding, curricular knowledge and knowledge of instructional strategies are all components of pedagogic content knowledge. As the development of pedagogic content knowledge is largely experiential, teachers gradually construct their own unique pedagogic content knowledge using their knowledge of the content and pedagogy gained through pre-service and in-service education, their experience in the classroom as both a student and a teacher, the advice of trusted colleagues, and personal beliefs and perceptions of education (Appleton 2008). Teacher experience seems to be the single greatest determining factor in the development of pedagogic content knowledge. A firm grasp of the subject matter is, however, a prerequisite for the development of pedagogic content knowledge (Van Driel, Verloop & De Vos 1998) as a teacher cannot organise unknown content.

Grossman (1990:10–11) postulates that pedagogic content knowledge develops through three distinct avenues: (1) apprenticeship of observation, (2) disciplinary background and (3) professional development. Grossman (1990) posits that the instructional strategies, knowledge of student understanding and curricular knowledge to which student teachers were exposed as learners all contribute to the development of pedagogic content knowledge:

Experiences as learners provide prospective teachers with memories of strategies for teaching specific content, to help shape their own expectations learners, [and to use] particular texts and topics [because they are] likely to remember aspects of the curriculum. (p. 11)

A second source of pedagogic content knowledge deals with the disciplinary background of the teachers themselves. A teacher's comprehension and background of subject matter would 'affect their conceptions of what it means to teach a particular subject [and the] selection of particular curricula of specific curriculum materials' (Grossman 1990:12). Professional development programmes that cater for developing strategies of methods are the third avenue by which pedagogic content knowledge can develop. Exposing teachers, new and experienced, to a variety of instructional strategies and approaches to learning enhances their professional knowledge base, according to Grossman (1990).

Finally, classroom experience constitutes an additional avenue for developing pedagogic content knowledge. Teachers, as they acclimate to the classroom environment, begin to acknowledge learners' conceptions and misconceptions (Grossman 1990). Teaching experience is yet another major source for pedagogic content knowledge. Classroom practice, it is argued, is embedded in the development of pedagogic content knowledge because teachers derive pedagogic content knowledge from their own practice and formal training (Van Driel et al. 1998). If classroom experience is significant for the ways in which pedagogic content knowledge develops, then how initial teacher education programmes integrate the teaching practice is imperative.

The student teaching internship, or teaching practice,² affords an opportunity for the mentor teacher and teaching intern or student teacher to collaborate with respect to developing pedagogic content knowledge. Listening to the dilemmas, doubts, fears and successes of student teachers associated with teaching practice may yield insight into the development of pedagogic content knowledge (Caires, Almeida & Vieira 2012). Despite increased awareness that becoming a teacher is a lifelong process, several key questions remain unanswered (Caires et al. 2012). In this article, we contribute answers to some of these questions by examining the ways in which the pedagogic content knowledge is developed through experiences that relate, in particular, to initial teacher education programmes.

Methodology

The article draws on data derived from qualitative (group interviews) and quantitative (questionnaires) instruments. The data analysis for data from both instruments was informed by a qualitative research approach.

Qualitative research deals with an in-depth understanding of the issue being studied (Stephanus, cited in Amakali 2013:38). As qualitative research relies heavily on individuals who are able to provide data about their experiences, it works appropriately with small numbers of people. Qualitative research permits the data to unfold in a natural manner (Chipangura 2013:23). We intend to offer some insights of participants' experiences of the BEd programme as these experiences relate to the ways in which the students developed pedagogic content knowledge.

Creswell (2012:142) defines *population* as 'a group that has the same characteristics'. A sample as a portion of elements taken from a population is considered representative of the larger population (Black & Champion, cited in Nghaamwa 2013:29). Purposeful sampling was selected for this study as this sampling is concerned with the identification and selection of individuals, or groups of individuals, who are especially knowledgeable about, or experienced with, a phenomenon of interest (Creswell 2012). The sample was drawn from student teachers who had registered for their fourth year in a BEd programme.

A questionnaire was administered to all registered students who had attended class on the particular day on which access was provided by a lecturer involved with the programme. Fifty-eight students agreed to complete a questionnaire aimed at gathering descriptive and general information about the participants. Two group interviews were conducted with a total of seven participants: four participants in one group interview and three in the other.

The participants were all female; no males had been registered for the BEd programme at that time. The participants – representative of three language groups in South Africa: English, Afrikaans and isiXhosa – ranged in age from 18 to 40.

²MRTEQ (DHET 2015:15) refers to teaching practice as Work Integrated Learning (WIL).

Ethical considerations

Ethical approval to conduct the study was received from the Cape Peninsula University of Technology (EFEC 2-8/2014).

Findings and discussion

This section presents findings from the data gathered, as described in the previous section. Data from group interviews were grouped according to common categories and themes. While analysing participant responses, two categories clearly emerged: the first was the university setting and the second was the school setting. Within each of these categories, two themes stood out concerning the ways in which pedagogic content knowledge is developed through experiences associated with initial teacher education programmes. For the university setting, experiences regarding coursework and lecturer variances in the BEd programme had an impact on participants' development of pedagogic content knowledge. In the school setting, experiences, relating to time in the classroom and mentor teachers, affected the ways in which pedagogic content knowledge was developed. These are unpacked in more detail in the remainder of this section and article.

The university as a site for developing pedagogic content knowledge

Upon registration, first-year students look at their proof of registration, with a number of subjects or modules listed for the year, with little understanding of what they can expect to encounter in each. They have virtually no capacity to fathom exactly what will be taught in each of those subjects. As the years progress, however, they become more able to predict what might be taught in the subjects or modules listed on their proof of registration. Even so, students lack the power to dictate the content of the modules chosen. In the specific case of BEd students, and particularly those registered for Foundation Phase specialisation, just like the participants in the article, they had no option to vary modules. In other words, the programme is entirely prescribed for students. Of course they had choices about the *manner in which they engage* with the content presented, as well as with the lecturer presenting the material, but they had no choice about the content itself, or the presenter of that content. The participants expressed their views about the ways in which their experiences developed pedagogic content knowledge.

Coursework useful yet not completely applicable

Participants' responses to the questionnaire and the group interviews demonstrate exposure to a range of knowledge in the programme from coursework that is useful to them. Coursework here represents what is presented to student teachers during modules which constitute the BEd programme credits. The experiences involved in attaining this knowledge can be argued to contribute to the ways these student teachers develop pedagogic content knowledge. Grossman (1990) argues that disciplinary background and professional development are avenues for the development of pedagogic

content knowledge. In addition, critical components of pedagogic content knowledge include conceptions of the purpose of teaching subject knowledge, curricular knowledge and knowledge of instructional strategies (Grossman 1990). Table 1 presents participants' responses relating to the knowledge and skills covered in coursework in the BEd programme.

Participants reported that knowledge of the Curriculum and Assessment Policy Statement (CAPS) and of child development were the most useful domains to their development as teachers. Further, most participants reported that the content knowledge for Foundation Phase subjects was very useful (50.9%). Teaching for inclusive education was also considered useful by the majority of participants (63.5%). Over 80% of the participants reported that pedagogical content knowledge for Foundation Phase subjects, taught as part of the BEd programme, was useful.

Questionnaire data presented in the table shows that, overall, most participants found the items listed to have been useful. The item that the lowest number of participants reported as useful, concerning the manner in which it was covered in the BEd programme, was information and communication technology (ICT) skills, and yet this too was over 60%. That student teachers found items useful, however, does not necessarily mean that they are able to apply the knowledge about those items in the classroom.

In a group interview, participants admitted that they would not be able to implement all of the knowledge and skills taught in the programme in the classroom, or at least not to the same extent. Participants articulated the following:

'I had the expectation that we are actually going to work with children and everything and then the first year we had subjects that I won't even teach in the Foundation Phase.' (ST6, female, fourth year)

'I'm still a bit nervous, also I feel like we learnt a lot and obviously had a lot of opportunities, but I feel like the subjects aren't really equally weighed. So I feel a lot more confident to teach certain areas than other areas, like I feel confident to teach Maths because our lecturer gave us a sound knowledge of what to do where I actually feel like [in] my home language

TABLE 1: Knowledge and skills covered in the Bachelor of Education programme, $n = 58$.

Knowledge and skills covered	Not at all useful (%)	Somewhat useful (%)	Useful (%)	Very useful (%)
Content knowledge for Foundation Phase subjects	1.9	3.8	43.4	50.9
Pedagogical content knowledge for Foundation Phase subjects	0.0	8.0	44.0	48.0
Knowledge of the CAPS curriculum	0.0	11.3	41.5	47.2
Child development	0.0	7.4	18.5	74.1
Learner assessment	0.0	11.5	34.6	53.8
Information and communication technology skills	11.5	26.9	40.4	21.2
Classroom management	4.0	14.0	44.0	38.0
Teaching for inclusive education	0.0	3.8	32.7	63.5
Teaching in a multilingual setting	4.0	16.0	40.0	40.0
Integrated teaching and learning	0.0	18.0	32.0	50.0

CAPS, Curriculum and Assessment Policy Statement.

lessons, I don't know more about conducting these lessons.' (ST4, female, fourth year)

'I came to university to get a theoretical base because I taught for four years before I came to university. What I realised is that university doesn't prepare you for running a classroom, it gives you a lot of content and theory to back up what you're supposed to be doing, but there's a lot of things that I feel you can only get in practice.' (ST2, female, fourth year)

The three responses above represent three varied experiences that challenge the knowledge and skills developed in the BEd programme. In the first extract, for example, the participant felt that the knowledge and skills learnt were not entirely relevant to the context in which she will be teaching. Other participants agreed with these sentiments, sharing similar views with respect to the first year being a 'waste of time'. Their idea of a 'waste of time' related to content or subject matter knowledge that did not enhance pedagogic content knowledge for classroom practice. The second extract highlights the perceived disproportion with which subject matter knowledge or disciplinary background was covered in the coursework. A lack of practice in the coursework is elicited from the third extract.

Experience related to perceived disproportionate subject matter knowledge or disciplinary background, as evidenced in the second extract above (ST5, female, fourth year), was raised frequently. It relates to the second theme in the university setting that will be discussed below. An additional account, relevant to the perceived disproportionate subject matter knowledge or disciplinary background, follows:

'Yeah because this year is actually basically the first year in English where we've done practical stuff. The other years we've literally done literature, like essays and books written ... and those kinds of things which are stimulating but not what you're going to do in the classroom. So your fourth year is basically the first time where they've been saying this is how you conduct your English lessons, and this is how you do a phonics lesson, which they probably should have done from the first year.' (ST7, female, fourth year)

This participant insisted that the presentation of English during the BEd programme was not logical. She translates the *relevance* of content of particular modules or subjects in the programme to its capacity to develop pedagogic content knowledge that will be relevant to classroom practice: '*how* you conduct your English lessons, and *how* you do a phonics lesson' (own emphasis).

We are not claiming here that these participants are correct or incorrect in their analysis of coursework presented in this BEd programme. We are, however, illustrating that as student teachers in a BEd programme, these participants' experiences suggest that the ways in which pedagogic content knowledge is developed in the BEd programme is not entirely aligned to what student teachers expect to be doing in the classroom and, in fact, there is misalignment between disciplines.

In spite of the differing opinions that the student teachers expressed in relation to how the coursework was presented during the initial teacher education programme, there was a

sense amongst the participants that they had been adequately prepared to teach, as revealed in the extracts from group interviews:

'I feel quite prepared to walk into a classroom next year. I know it is going to be overwhelming. I must work and I might fail a few times, but I also know if I'd just sit down I have all the theoretical knowledge behind me and I have all the clips that teachers were given. Also, my experience is going to help with the confidence and I really feel like [the lecturers] have tried their best to prepare us.' (ST1, female, fourth year)

This student teacher felt positive about the experience, especially with reference to the university's influence in terms of relating theory to practice. She indicated that the BEd programme prepared her for the classroom and that she would be able to cope with the dynamics within that context. She further mentioned that, like everyone else, she felt slightly overwhelmed by the idea of being in the classroom. But ultimately, this participant was confident about the way in which she had been taught at university.

Another participant echoed the sentiments above:

'My whole beliefs changed as well, like, I thought you just walk into the class, you teach, you do your thing and that's it. But now I see there's more. There's a lot of theory that actually backs up what they're doing in class and we learnt a lot about child development which helped a lot because we learnt about all the differences that a child might have and how to teach diverse classrooms.' (ST5, female, fourth year)

Lecturer variance

A pertinent theme emerging from the data concerned variance amongst lecturers who presented different modules or subjects to participants in the programme. This theme relates to participants' perceptions of disproportionate subject matter knowledge or disciplinary background within the BEd programme. Lecturers are the chief mediators of knowledge within any Bachelor programme. It would therefore stand to reason that in a BEd programme, as in any other bachelor's degree programme, experiences that relate to lecturers would be salient. The general sense amongst participants was that lecturers in the programme are good. This is evinced by the following extract from a group interview:

'I was amazed about the lecturers because ... we have really good lecturers, who have supported us through the past few years and ... they had a lot of confidence, I think.' (ST1, female, fourth year)

At the same time, however, there was a sense of variance between lecturers, resulting in a measure of inconsistency with regard to the development of pedagogic content knowledge amongst participants. One of the examples of the concern of variance between lecturers pertained to differences in the manner in which the English and Afrikaans language lecturers presented their subject matter and pedagogic content knowledge. Participants stated that the Afrikaans lecturer presented a different approach to language teaching than the English lecturer. For example, one participant stated

the following: 'The Afrikaans and the English lecturers believe something different, so their starting points about the manner in which children learn is the opposite' (ST3, female, fourth year). For one participant, these differences translated into a problem in terms of the way in which her pedagogic content knowledge developed. The participant explained that she did not know how certain phonemes sounded in English or, as a result, how to organise the related content for learners (ST6, female, fourth year).

The experiences of lecturers' varying approaches in presenting their subjects were notable for the ways in which participants developed pedagogic content knowledge. One participant, surprisingly, expressed this variance as a strength for the way pedagogic content knowledge could be developed:

'We learnt a lot and they also gave us a lot of contradictory approaches to teaching so you can kind of choose. You can't rely on the one lecturer's way of doing it because you like her [:] you have to kind of feel like, okay but then what do I think? And, I think for the rest of our teaching career we are going to have to find our own feet.' (ST5, female, fourth year)

Overall, the university setting provides participants with a number of critical components pertaining to pedagogic content knowledge, according to Grossman (1990). Curricula knowledge and knowledge of instructional methods appear to have been foremost. Evidence from group interviews suggests that conceptions of the purpose for teaching subjects have not been categorically developed through experiences relating to the university setting of the BEd programme. Similarly, participants' experiences relating to knowledge of learner understanding were not adequately covered in the university setting of the BEd programme. Participants came to perceive the disproportion between the experiences in the knowledge of various subject matter or disciplinary backgrounds, as these were integrated into the BEd programme coursework.

The school as a site for developing pedagogic content knowledge

This section presents participants' responses pertaining to their experiences during teaching practice. In particular, this section focuses on experiences in the school setting as they relate to the participants' development of pedagogic content knowledge. Whereas all participants registering for the BEd programme would have attended the same lectures and were therefore exposed to the same coursework, each participant would have had a unique school experience or teaching practice. There are, of course, similarities to the extent that all school experiences or teaching practice occurred in Foundation Phase classrooms alongside a teacher who fulfilled the role of 'mentor teacher'. Themes emerging, as salient within the school setting, experiences or teaching practice for the ways in which participants' pedagogic content knowledge developed, included time in the classroom and mentor teachers.

Time in the classroom

Table 2 reports the experiences of participants of classroom activities engaged in during teaching practice.

The questionnaire data illustrate that participants report having opportunities to engage in numerous activities which could develop pedagogic content knowledge. Indeed, for none of the items listed below did any participant report never having engaged in that activity.

In group interviews, participants did, however, indicate that teaching practice does not give them enough time to develop pedagogic content knowledge. Participants claimed insufficient opportunities to present subject matter knowledge to learners, explaining that it is not possible to assess their own abilities or the learners' grasp of concepts. In other words, participants stated that their experiences during teaching practice did not allow them to adequately grasp learner conceptions and misconceptions of subject matter knowledge.

Many of the participants complained about the time allocated to teaching practice. Firstly, most felt that the initial teacher education programme should make provision for students to be placed in classrooms immediately in the first term, extending throughout the year with the intention that student teachers can witness a variety of facets of learner development throughout the year. In this BEd programme, participants would be involved in teaching practice at the same time every year, and attend to different grades each year. For instance, in second year, all participants would go to either Grade R or Grade 1, in the third year Grade 2 or 3, and in the fourth year they could opt for the grade they intended to teach after graduating. Moreover, participants would visit a different school for each teaching practice. Because the programme was not designed this way, participants did not have an opportunity to gain an in-depth understanding of learner conceptions and misconceptions of subject matter knowledge. To the extent that this is a critical component of pedagogic content knowledge, according to Grossmann (1990), the experiences of teaching practice, for the participants in this study, constricted the ways in which pedagogic content knowledge was developed in this initial teacher education programme.

Secondly, participants noted that the time spent in the classroom was not always applicable to the development of

TABLE 2: Classroom activities engaged in during teaching practice, $n = 58$.

Class activities engaged with during teaching practices	Always (%)	Often (%)	Seldom (%)	Never (%)
Helped learners who had learning difficulties	56.9	37.9	5.2	0
Demonstrated empathy towards learners	75.4	22.8	1.8	0
Facilitated group work	65.5	34.5	0	0
Encouraged learner participation	82.8	17.2	0	0
Facilitated peer learning	53.4	43.1	3.4	0
Differentiated instruction for individual learner needs	51.7	46.6	1.7	0
Used different types of feedback to assess learners	34.5	51.7	12.1	0
Integrated technology	39.7	43.1	17.2	0

pedagogic content knowledge. Many participants noted that apart from their evaluation lesson, they were tasked with administration duties such as marking or attending to learners in classes where teachers were absent. Time in the classroom therefore appears to be a Pandora's box: what may come out of it with regard to development of pedagogic content knowledge is anyone's guess.

When asked about their experience of teaching practice, many participants acknowledged that there was little reflection of their practice. One student teacher noted:

'There is not enough time to judge whether what we learnt is useful as we don't get to teach much, I mean real teaching.' (ST3, female, fourth year)

Even when the opposite is true, when a few student teachers were placed in classrooms where the teacher gave a great deal of leeway or was absent from school, when they had the class to themselves, some participants realised that much of what they learnt was 'thrown out the window' as they tried to 'manage' the class and complete the work that needed to be finished for the day. Participants expressed the belief that they would develop pedagogic content knowledge when they eventually had time in their own classroom:

'I will develop more when I am on my own.' (ST1, female, fourth year)

Despite the caveats with regard to time, noted by participants, the overall sentiment was that teaching practice is critically essential for developing pedagogic content knowledge. Indeed, participants describe teaching practice in the school setting of the BEd programme as the space in which they discovered their identity as teachers. An excerpt from a group interview reveals this:

'I think all the more, we are all the more ready here and I feel like whatever we got taught in class was like you said [,] a new way of thinking and I found out the way I would teach especially during practicals.' (ST2, female, fourth year)

Relationships with mentor teachers

Mentor teachers play a significant role in the school setting and teaching practice experience associated with a BEd degree. Ironically, the NSE has no prescription for who may be a mentor to a student teacher, nor do they provide any provision for compensation for those who facilitate this important experience within the BEd programme.

Table 3 reports elements of the participants' relationships with the mentor teachers whilst registered for the BEd programme.

Questionnaire data in Table 3 show that most participants had positive experiences with mentor teachers. For example, almost 70% of the participants reported that mentors were *always* happy to give them advice and inspire them to teach. In addition, over 50% of the participants reported that mentor

TABLE 3: Relationships with mentors, $n = 58$.

Interactions with mentor teachers	Always (%)	Often (%)	Seldom (%)	Never (%)
My mentors were happy to give me advice	69.0	27.6	3.4	0.0
My mentors inspired me to teach	67.2	29.3	3.4	0.0
My mentors gave me feedback on my work	44.8	41.4	10.3	3.4
My evaluations by my mentors were fair	53.4	39.7	6.9	0.0
My mentors were empathetic	51.7	41.4	5.2	1.7
My mentors gave me too much work to do	6.9	20.7	43.1	29.3
My mentors did not pay attention to me	6.9	13.8	24.1	55.2
My mentors often seemed unhappy about my work	6.9	6.9	10.3	75.9

evaluations were fair and that mentors were empathetic. Even at the other end, the favourable relations between participants and mentor teachers remained clear from questionnaire data. Only a few participants (less than 10%) reported that mentors gave them too much work, did not pay attention to them or were unhappy with their work.

Whilst data from group interviews paint a more nuanced view of participants' relationships with mentor teachers, the participants do, on the whole, experience mentors as knowledgeable bearers of valuable experience from their many years in the classroom as teachers. The experiences associated with mentor teachers can influence the development of pedagogic content knowledge either positively or detrimentally. Student teachers' recounts of experiences with mentor teachers highlight this:

'My mentor teacher allowed me to like teach what I like, I'd just pretend the kids were mine and it was very interesting, I loved it and I think I found my teacher vibe. She made me do things like organise an outing and stuff but I couldn't do every day because she ... needed to track ... the learners' progress and do assessments.' (ST3, female, fourth year)

Other experiences were less positive: Often, mentor teachers would not allow participants to use methodologies from the coursework of the initial teacher education programme. Mentor teachers considered these 'disruptive' to what the learners in the class are accustomed to. However, if participants are not able to practise what they are being taught, the ways in which they develop pedagogic content knowledge may be compromised. A few participants did indicate that they could implement strategies and methodologies which they had learnt during the BEd programme coursework, as noted in the excerpt above. Another participant admitted enjoying her previous teaching practice experience for this reason:

'The teacher was happy for me to teach using whatever methodologies we learnt in initial teacher education and even asked about some of the methodologies so she could incorporate them into her teaching.' (ST5, female, fourth year)

This participant experienced her mentor as supportive about the way in which pedagogic content knowledge was developed. In particular, the experience facilitated by this mentor teacher deepened this participant's knowledge of instructional strategies, which in turn could translate into knowledge of learner conceptions and misconceptions as

well as conceptions of the purpose for teaching subject matter. Two other student teachers conveyed similar experiences, as evident in these accounts:

'I know my mentor teacher had high expectations of me being in my fourth year. She expected me to know things like I expected her to support me. She was amazing. She worked with me a lot.' (ST4, female, fourth year)

'The kids didn't listen to me because I am more soft-spoken and I took it very personally and it hurt, but my mentor teacher [,] she said you know that it will get better the more I work at it and she helped me through.' (ST7, female, fourth year)

The excerpts from these participants offer narratives pertaining to their experiences with mentor teachers, which were generally positive. They articulated experiences that could positively influence the manner in which their pedagogic content knowledge develops. In line with the questionnaire data, several participants of the group interviews concurred that experiences with mentor teachers were helpful, providing ideas about how things should be done.

There were, however, other participants who reported a different experience. The following excerpts are from student teachers who did not have the support of their mentors and consequently had negative experiences in this regard:

'I wish I could be a mentor teacher and I will just treat that person as a teacher because now we're not always getting treated as a teacher and also just give them space to do their own thing, to be creative to use what they have. Also one thing that I would do that I didn't get a lot [of] was comments on my lessons, the teacher there just signed the letter and didn't leave any comments, so I didn't know what I had to do to improve on my lesson.' (ST5, female, fourth year)

'I thought I would have a different experience than before like have more control of the class, but the teacher there was strict ... I'm not allowed to be left alone with the class because there has to be a teacher there the whole time ... even to take them to the bathroom like I can't take them to the bathroom, the teacher has to be there. I just felt like they don't actually trust me with the children, like I don't have the opportunity to discipline or find my own teaching self.' (ST2, female, fourth year)

Participants' excerpts make evident the strong influence mentors exert with respect to the school setting as a site for developing pedagogic content knowledge in an initial teacher education programme.

Conclusion

This article has examined the ways in which pedagogic content knowledge develops in initial teacher education programmes from the perspective of student teachers. This was important as initial teacher education programmes seek to equip students with subject matter knowledge along with complex multifaceted skills necessary to fulfil the responsibilities related to transmitting such knowledge (Pryor et al. 2012). In addressing this issue, this article draws on data elicited from experiences of student teachers who

were registered for their final year of a BEd Foundation Phase programme in South Africa.

The article proceeded to review literature describing factors which shape the experiences of initial teacher education in South Africa, coupled with a more detailed discussion of pedagogic content knowledge and how this can develop. To this end, the article drew on Grossman's (1990) conceptualisation of pedagogic content knowledge to analyse participants' experiences of the initial teacher education programme. Two categories emerged from participants' responses: one related to the university setting and the second, to the school setting. It is evident from these categories that the ways in which pedagogic content knowledge develops in each setting relates to lecturers' variation in teaching approaches as well as how time in the classroom is managed. In addition, the role of mentor teachers emerged as critical.

The continuous need for qualified teachers renders initial teacher education programmes a continuing site of importance for research and understanding, to which this article contributes. It highlights the ways in which the development of student teacher pedagogic content knowledge is both enabled and constrained by their initial teacher education programmes and the schools in which they undertake teaching practice. The findings justify urgency for policymakers, teacher education providers, teacher educators and schools to develop strong linkages and effective forms of teacher preparation to ensure equitable and quality learning for South African learners.

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Authors' contributions

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Data availability statement

Data may be shared after approval of the application.

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