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POSTGRADUATE CERTIFICATE IN EDUCATION (PGCE) STUDENTS' EXPERIENCE OF MENTORING

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Abstract/Izvleček The school practicum is an essential component of pre-service student teachers' training in the PGCE qualification, affording opportunities to develop mentees' own identities. Along with a range of competences. This study explores how student teachers at Nelson Mandela University perceived their School-Based Learning (SBL) mentoring experience about the roles that mentors should fulfil based on an adapted seven-factor framework (Hudson, 2004, 2009) by adopting a post-positivist paradigm. The findings showed that both groups of participants who would like to return to the same mentor again or those who wish not to do so indicated that these seven factors played a crucial role in their decision-making.

Podiplomski certifikat iz izobraževanja (PGCE) – izkušnja študentov z mentorstvom

Šolska praksa je bistvena sestavina predhodnega usposabljanja študentov bodočih učitelje za pridobitev kvalifikacije PGCE (ang. Postgraduate Certificate in Education), ki ponuja priložnosti za razvoj lastne identitete mentorirancev in vrsto kompetenc. Študija raziskuje, kako so študentje bodoči učitelji na Univerzi Nelsona Mandele dojemali svoje mentorske izkušnje s šolskim učenjem (ang. School-Based Learning SBL) o vlogah, ki bi jih morali mentorji izpolnjevati na podlagi prilagojenega okvira sedmih dejavnikov (Hudson, 2004, 2009) s sprejetjem postpozitivistične paradigme. Ugotovitve so pokazale, da sta tako skupini udeležencev, ki bi se znova želeli vrniti k istemu mentorju, kot tisti, ki tega ne želijo, navedli, da je imelo teh sedem dejavnikov odločilno vlogo pri njihovem odločanju.

Keywords:
ICT modelling, ICT pedagogical knowledge, mentor, mentoring, model, personal attributes, pedagogical knowledge, system requirements

Ključne besede:
IKT modeliranje, IKT pedagoško znanje, mentor, mentorstvo, model, osebne lastnosti, pedagoško znanje, sistemske zahteve

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Introduction

Mentoring as a concept lacks a unanimous definition (Charron, Kalbarczyk, Martin, Combs, Ward and Leontsini, 2019; see also Niklasson, 2018). The conceptualisation of Petrovska, Sivevska, Popeska and Runcheva (2018) applies within the Work Integrated Learning (WIL) space when the Post Graduate Certificate in Education (PGCE) students at Nelson Mandela University interact with their mentors, since these authors posit that mentoring is a complex activity that demands interactivity when the mentor as the expert engages with the mentee in a supportive manner to enable a learning space conducive to developing the mentee's work competences, professional development and career advancement. The above suggests that interaction, mutual learning, and support aid in developing proficiencies. It also resonates with the competences to be realised by students as proclaimed by the South African Department of Higher Education (2015) while the student-teacher is at university and during their work-integrated learning (WIL) or teacher practicum. According to the Minimum Requirements for Teacher Education Qualifications (MRTEQ), the minimum competences include (Department of Higher Education, 2015, p. 62, 64) the following as indicated by these extracted phrases:

> *"… sound subject knowledge … understand how to teach their subject … sound understanding of who their learners are and how they learn … communicate effectively … high levels of literacy, numeracy and Information Technology skills … knowledgeable about the school curriculum … understand diversity … manage classrooms effectively … assess in reliable and varied ways … positive work ethic and values … reflect critically on their own practice ... adapt to evolving circumstances"*

These competences resemble the perspectives stated by Vršnik Perše, Ivanuš Grmek, Bratina and Košir (2015). It is argued that school-based mentoring during school-based learning (SBL), also sometimes referred to as work-integrated learning (WIL), could play an essential role in developing these aspects. SBL, through mentoring, enables trainee teachers to negotiate the transition process from theory to practice (Buhagiar and Attard Tonna, 2015; Vršnik Perše et al., 2015) and, over time, helps students to provide quality teaching to learners. At the same time, Miles (2008) and Yuan (2016) caution that mentoring is not always beneficial, as it can either promote or impede personal growth among pre-service student-teachers.

In addition, it is also possible that the mentoring process could be challenging for mentors if they are unsure about their roles (Frick, Carl and Beets, 2010; Dlengesele, 2020; Moosa and Rembach, 2020). The focus of our research was to ascertain to what extent the role a mentor is expected to fulfil influences PGCE student teachers' (mentees') willingness to return to the same mentor-teacher (or not to return), while at the same time providing an overview of the perceived roles fulfilled by their mentor teachers and those not fulfilled by utilising the Hudson framework (2004, 2005, 2009). Given our research, the next section will provide an overview of findings on mentoring research in the South African context.

Mentoring research findings in South Africa

The quantitative findings of a study by Du Plessis (2013) indicated that positive relationships were fostered between mentor teachers and their mentees, that the mentor was positive towards mentoring, displayed positive dispositions towards teaching, addressed negative emotions of the mentees and motivated the mentees towards the teaching profession. The data showed that the mentors were good role models, provided sound advice, were willing to assist and that their feedback was constructive. Concerns that were not attributed to all mentors related to lesson planning guidance, time constraints that influenced support interaction, and having to stand in when a mentor teacher was absent. Du Plessis (2013) posits that greater collaboration between lecturers and mentors should be fostered, mentors be made aware of the important role of support and modelling, and training be provided to assist in providing feedback.

Modipane and Kibirige (2015) conducted research with fourth-year B.Ed. pre-service student teachers. They found that mentees felt that their mentors did not furnish them with support and skills, which led to an unsatisfactory mentoring experience as they were not learning from their mentors' modelling. Furthermore, mentees were given heavy workloads, taught in overcrowded classrooms and experienced discipline concerns. Teacher attitudes were not positive towards them, and there were concerns over curriculum-related knowledge. Concerns related to mentors' lesson planning and what mentees' lesson planning constitutes, also emerged, while it was also indicated that there was a theory-practice gap, i.e., what they are taught at university and real-life classroom experiences.

A study by Baartman (2016) found that the personal attributes of their mentors were positive and that they were supported. However, half the mentors were not always in class to fulfil a supportive and guidance role. While mentees received feedback, this was mostly in oral form and not always critical and constructive. Also, the mentors' teaching was not always perceived as effective. Although the mentoring experience was conducive overall, feedback, observation, pedagogical knowledge, modelling, and system requirements were areas of concern. The researcher recommended that training for mentors be seen as important related to their roles, and that there be greater collaboration between the university (lecturers) and schools (mentors).

Hugo (2018) conducted research on Post Graduate Diploma in Education (PGDE) students teaching in grades 1 to 3 by analysing the participants' teaching practice workbooks which their mentors completed. Her analysis showed that some mentors do not provide constructive feedback, while some provided none at all. The researcher thus redeveloped the teaching practice workbooks and suggested that mentor teachers should receive specific training regarding their roles, including more direction and instruction.

A study by Sokhulu (2018) indicated that overall, mentees' classroom teaching was observed, and beneficial feedback was furnished. The personal attributes such as relationships were experienced as positive. Some participants indicated that they started to implement new teaching strategies and classroom management strategies that they gained from their mentors. However, some mentees experienced concerns related to their mentors which led them to approach other teachers at school for support. In addition, some students felt that there was a theory-practice gap between the SBL experience and university theoretical studies.

Moosa and Rembach (2018) found in their study that mentees' pedagogical decisions were informed by their mentors. The mentors foregrounded administrative tasks, which led to teaching taking a back seat. The findings showed that for some mentees, there was a mismatch between what they were taught at university and their experience at school. Mentors were also negative towards the teaching profession, which resulted in mentees questioning their career choice. Mentees expected their mentors to expose them to system requirements, to serve as role models, to provide feedback on lesson planning and teaching and make them feel welcome in the classroom; however, this was not always the case.

Ngibe, Pylman, Mammen and Adu (2019) found that mentees struggled to teach in overcrowded classrooms consisting of 40+ learners, something which is quite common in the South African context, which leads to classroom management issues; confidence levels were affected negatively, and some mentees even lost their self-control. A theory-practice gap was evident; while mentees were exposed to constructivist learner-centred approaches, some teachers still taught in the traditional way.

Research by Dlengezele (2020) found that mentor teachers were not complying with the Hudson (2004) five-factor framework. However, mentors had not received training to develop their mentoring roles.

Findings from another study by Moosa and Rembach (2020) suggest that most mentees felt unsupported by mentor teachers, owing to negative interactions and experiences, and some felt unwelcome. In addition, it was noted that many mentors struggled with classroom management and witnessed unlawful corporal punishment. They recommended that greater collaboration between schools and the university must be fostered so that schools, mentors, and mentees could have greater clarity about expectations and roles.

Context and gap

It was highlighted in the previous section that mentor teachers are not well versed in the roles that they should fulfil. The importance of these roles is vital since, if mentors are not on top of these roles, this has the potential to counteract the intended purpose of WIL (Frick, Carl and Beets, 2010; Dlengesele, 2020; Moosa and Rembach, 2020). Jita and Munje (2022) posit that the mentees' personal growth could be attributed to their mentors' experience, personal characteristics, and the creation of growth opportunities by the mentor. In addition, they state that the mentee's perception of their mentor shapes their SBL experience, which then highlights the important role and influence of the mentor teacher. It is also during the WIL experience that mentees are afforded opportunities to make connections between theory and practice (Buhagiar and Attard Tonna, 2015; Vršnik Perše et al., 2015); however, there are also possibilities for theory-practice gaps to emerge (Modipane and Kibirige, 2015; Sokhulu, 2018; Ngibe at al., 2019).

In the PGCE qualification, mentees are exposed to WIL under the supervision of a mentor for period ranging from eight to twelve weeks, after which the South African Department of Higher Education (Department of Higher Education and Training, 2015) expects every PGCE student to have developed the confidence and self-efficacy to teach effectively within an inclusive classroom environment. Unfortunately, no data currently exist on how pre-service student teachers in the PGCE Programme at Nelson Mandela University perceive the SBL or WIL mentoring experience. Mentoring research within the South African context is important (Moosa and Rembach, 2020). The research reported in this paper thus resonates with this call, as it investigates whether a mentor teacher's personal and professional attributes or actions, system requirements, pedagogical knowledge, modelling, feedback, ICT pedagogical knowledge, or ICT modelling do influence a student teacher's self-efficacy and willingness to return to the same mentor-teacher (or not to return).

Theoretical framework

Kram (1985) and Ragins and Kram (2007) refer to an individual's career and psychosocial functions related to mentoring. While these functions were not theorised on the student teacher per se, it seems plausible to relate these functions to Hudson's (2004, 2009) the five-factor Mentoring Perceptions of Student Teaching (MEPST) model: (1) personal attributes, (2) system requirements, (3) pedagogical knowledge, (4) modelling, and (5) feedback. In Hudson (2004, 2009) and Hudson, Skamp, and Brooks (2005), five-factor mentor-teacher roles appear to resonate with aspects highlighted by Vršnik Perše et al. (2015), Valenčič Zuljan and Marentič Požarnik (2014) and Buhagiar and Attard Tonna (2015). Our position on how the Hudson framework relates to Kram (1985) and Ragins and Kram (2007) is as follows: We posit that personal attributes can be related to the psychosocial function of the mentor, while system requirements, pedagogical knowledge and modelling traits or actions relate to the mentor's career function. Feedback, as a rule, straddles the psychosocial and career functions since it facilitates the mentee's vocational and psychosocial development as meta-cognition, i.e., thinking about one's thinking during co-reflection.

Pre-service student teachers fall within the initiation stage of the Kram (1983, 1985) framework, and it is during this stage that they receive professional assistance, coaching, vouching and protection from their mentors as they pursue career advancement (Kram, 1983, 1985; Ragins and Kram, 2007). It is also in the initiation stage where student teachers, with the help of their mentors, develop intra- and interpersonal psychosocial traits vis-à-vis identity, self-worth, self-efficacy, trust, and closeness (Kram, 1985; Ragins and Kram, 2007; see also Greiman, Torres, Burris and Kitchel, 2007).

The learning expected to develop during SBL can be framed within the Social Learning Theory (Bandura, 1977) and Situated Cognition Theory frameworks (Brown, Collins and Duguid, 1989). Situated Cognition Theory postulates learning as a social and situated activity that cannot be disconnected from the context or space in which it occurs. Thus, cultural and physical factors, individuals and language play key roles (Brown, Collins and Duguid, 1989). Similarly, Social Learning Theory emphasises authentic contexts and posits that an individual can learn from another individual or group through observation, imitation, and modelling; however, change in the behaviour of the learner is not a necessity (Bandura, 1997). Self-efficacy is a key personal aspect of Social Learning Theory which refers to an individual's belief(s) and confidence in his/her ability to produce specific performance attainments while exerting control over his/her motivation, behaviour, and social environment through social persuasion, observing how people similar to oneself successfully manage tasks, positive peer encouragement about one's capability to succeed in given activities, emotional arousal (Bandura, 1977, 1982, 1997) and imagining or visualising experiences (Maddux, 2002).

The Department of Higher Education and Training (2015) and The Department of Basic Education (2016) strongly advocated the importance of embracing and utilising Information and Communication Technology (ICT) for teaching and learning; this was also mentioned during the State of the Nation Address (SONA) in 2019 by the President of South Africa (Matiwane, 2019; McLeod, 2019). It is thus assumed that PGCE student teachers will also be exposed to ICT during the SBL. However, the Hudson framework does not include this aspect; consequently, we opted to incorporate this variable into Hudson's model (2004, 2009) five-factor Mentoring Perceptions of Student Teaching (MEPST) Model.

Research objectives and hypotheses

To achieve the identified research objectives and guide the overall conduct of the study, the following null hypothesis (Ho1) was formulated:
A mentor teacher's personal and professional attributes or actions, system requirements, pedagogical knowledge, modelling, feedback, ICT pedagogical knowledge, ICT modelling do not influence a student teacher's self-efficacy and willingness to return to the same mentor-teacher (or not to return).
As an alternative hypotheses (Ha_{1-7}), it is posited that:

- statistically significant positive relationships exist between a mentor teacher's personal attributes or actions (Ha_1), system requirements (Ha_2), pedagogical knowledge (Ha_3), modelling (Ha_4), feedback (Ha_5), ICT pedagogical knowledge (Ha_6), ICT modelling (Ha_7) and the student teacher's self-efficacy and willingness to return to his/her mentor-teacher (or not to return).

Methods, sample, and research instrument

This study is underpinned by a quantitative-positivist paradigmatic approach, adopting a cross-sectional survey research strategy where the viewpoints of all Nelson Mandela University students registered in the PGCE Programme in 2018 were elicited using a 62-variable, self-administered structured questionnaire. This research followed the ethical guidelines stipulated in the Nelson Mandela University Guidelines for Ethical Conduct in Research.
The questionnaire was derived from the Mentoring Perceptions of Student Science Teaching (MEPST) Model (Hudson, 2004, 2009). The MEPST is considered a valid and reliable research instrument to determine the perceptions of the mentoring roles of student teachers (mentees). The questionnaire was divided into three sections. Section A elicited details about the school method reflected on; demographic information about the mentor teacher; and how often the mentor-teacher provided feedback to observed and unobserved lessons. Section B focused on the student teacher's perceptions of the mentoring experience related to the MPEST model, using a 6-point Likert scale. Section C elicited the biographical details of the mentee as respondent.

Convenience sampling was used since the focus was on PGCE students' perceptions. The two printed questionnaires, one for each of their teaching methodology (didactics) specialisation subjects, were distributed to 100 PGCE students present over two group contact sessions. This resulted in potentially two hundred responses, i.e., two responses per student per subject method (didactics). The time to complete the questionnaires during these sessions was negotiated with the two lecturers on the day when they met the two groups of students. Each PGCE student willing to participate received two questionnaires, one for each of their two specialisation school subjects. Twenty-seven questionnaires were considered unusable, either because the respondents marked the same answer for all the questions, or because they chose the "No opinion" option for most of the responses to a significant portion of the questionnaire, which could be an indication that they did not want to participate. The responses of the remaining 173 questionnaires associated with a variable code were entered into MS Excel and then imported into the Statistical Package for Social Sciences (SPSS version 25.0). While the response rate was one hundred per cent, the survey response rate was 86.5%.

Data analysis

Factor analysis, a statistical technique used to assess commonalities among variables, reduces measurable and observable variables to less unobservable latent variables sharing common variance (Bartholomew, Knott and Moustaki, 2011). These unobservable factors are mostly hypothetical constructs used to represent variables. The independent latent variables were constructed and measured on a six-point Likert-style rating scale where "0", "1", "2", "3", "4", and "5" denoted "No opinion", "Never", "Rarely", "Sometimes", "Often" and "Always," respectively.
The Cronbach alpha was used to measure the reliability (Sekaran, 2003) or internal consistency (Pallant, 2007) of the instrument. The Cronbach's coefficient alpha ranges from 0 to 1, where a higher value indicates greater reliability. It is suggested that 0.7 should be the minimum acceptable cut-off (Pallant, 2007). The various tables in the quantitative results section show that the range of alpha coefficients of the seven constructs was between 0.851 and 0.957, all above the threshold of 0.70.

From the questionnaire of sixty-two variables, exploratory factor analysis (EFA principal component method with varimax rotation) identified seven key variables that explained 70.04% of the variance in the sample (see Appendix 1). All KMO values for the individual items (> 0.90) were well above 0.5 and the overall KMO measure of 0.955. This highlighted that the data were adequate to conduct an EFA, while Bartlett's test for sphericity (X2 (1891) =10707.603, $p < 0.001$) indicated that a pattern existed between items.

In addition, the seven extracted factors showed adequate convergent validity and discriminant validity, i.e. for convergent validity, the factor loadings were all above the minimum recommended value of 0.35 (Hair, Black, Babin and Anderson, 2010) while for discriminant validity, the correlation matrix did not show any problematic cross-loadings with correlations above 0.70 (Hair et al., 2010). Consequently, these complex variables--Personal Attributes (α=.934; n=13; $\bar{x}$=3.37; p<.001), System Requirements (α=.930; n=11; $\bar{x}$=2.71; p<.001), Pedagogical Knowledge (α=.957; n=15; $\bar{x}$=2.99; p<.001), Modelling (α=.916; n=8; $\bar{x}$=3.01; p<.001), Feedback (α=.900; n=8; $\bar{x}$=2.96; p<.001), Pedagogical Knowledge – ICT (α=.936; n=5; $\bar{x}$=2.44; p<.001) and Modelling - ICT (α =.851; n=2; $\bar{x}$=2.44; p<.001)--appeared to be interrelated as expected, correlated appropriately, fulfilled criteria for reliability and validity, and represented the 62-item latency construct "satisfaction with mentor" in a reliable manner.

The "Yes" and "No" option where students had to respond whether they would want to return to the same mentor were also quantitatively analysed, and mentees had to textually explain their response. However, the quantitative textual responses as data are not reported as part of the results, since these will form the basis for another research paper.

Descriptive statistics familiarise the reader with the data. Inferential statistics were used for hypothesis testing. Based on an adaptation of Hudson's (2004, 2009) five-factor MPST Model, this study hypothesised that *ceteris paribus*, no statistically significant relationship exists between a mentor teacher's personal and professional attributes/actions and the student teacher's self-efficacy and willingness to return to the same mentor-teacher. Mentor teachers' attributes/actions were encapsulated in the variables PA, SR, PK, M, F, PKICT, MICT.

The null hypotheses for this study were tested using one-way Analysis of Variance (ANOVA) and the Wilks' lambda (λ) statistic. An alpha (α) value of 0.05 is used in most disciplines and should the p-value be less than 0.05, the difference is statistically significant, and the null hypothesis should be rejected. However, if p>=0.05, the researcher is bound to accept the null hypothesis. Wilks' Lambda (λ) procedure was used to test the proportion of variance that was not explained by differences within groups. The λ value varies between 0 and 1, and if λ < is 1, most of the observed variance can be attributed to differences between groups, and the null hypothesis would be rejected (Tacq, 1997).

Quantitative results

Biographical information

The biographical information about the mentor teachers shows that from a sample of 173 respondents (male=48; female=125) as presented in Table 1, the gender distribution of the mentor teachers was 27% male and 73% female, while most mentor teachers were in the age range of 40 to 49, with the second-largest range being from 30 to 39 years.

As each respondent had an opportunity to complete a questionnaire twice, once for each method in which the participant specialised, the number of respondents was twenty-four male and 63.5 females. The .5 in 63.5 denotes that one participant completed only one of the two questionnaires. Most of the PGCE pre-service student teacher participants fell in the age range of 20 to 24, followed by 25 to 29, while most had isiXhosa as their mother tongue, followed by English and Afrikaans, respectively. Most of the schools (52.6%) that these students attended were located in a city or town area, while 31.8% of the schools were in a township area, i.e., schools mainly on the periphery of the city or town because of the segregation policy of apartheid before 1994 and in many instances, serving learners from informal settlements. Most participants were Further Education and Teaching (FET) English Home language or Primary Language method (didactics) students, followed by Economic and Management Science method (didactics) students, and Life Orientation method (didactics) students, respectively.

Only 35.3% of the participants indicated that they received feedback between one to five times from their mentor after lesson observation; 17.9% received feedback between 6 and 9 times and 11% indicated that they received feedback between ten

and nineteen times, while 30.1% indicated they did not receive any feedback from their mentor.

Personal attributes

The Likert statements related to Personal Attributes showed that allowing one to teach as often as one wanted was the most positive statement, with 64.7% when the "always" and "often" responses were combined, followed by feeling comfortable to talk to and instilling a positive attitude with at 63.6% and 61.3%, respectively. The lowest response was related to mentors not addressing the mentee's teaching anxieties, as indicated by 32.4% of the mentees.

Table 1. Personal attributes - Specification and pattern matrix of latent constructs in the questionnaire

Hox	**Item number**	**Item**	**Mean value of an item**	**Factor loading**	**Communality**	**Combining Never & Rarely (1 &2)**	**Combining Often & Always (4 & 5)**
	Factor 1 – Personal Attributes (PA) Cronbach alpha=0.934; Items=13; Mean Scale Score=3.37 (p<.001); Specification=Reflective						
	b20	Show sympathy towards you when your teaching lesson did not play out as planned	3.20	0.764	0.769	28.9%	48.0%
	b55	Show support when you were teaching your subject(s)	3.31	0.855	0.756	17.3%	52.6%
	b41	Make you feel more confident as a teacher	3.45	0.766	0.728	22.5%	59.0%
	b11	Instil positive attitudes in you towards teaching your subject(s)	3.47	0.739	0.713	20.8%	61.3%
	b57	Instil confidence in you to teach	3.39	0.720	0.688	22.0%	56.6%
Ho1	b9	Inspire you to teach	3.45	0.747	0.686	23.1%	58.4%
	b23	Encourage you to teach	3.54	0.531	0.567	19.1%	58.4%
	b59	Attentively listen to you on teaching matters	3.37	0.749	0.650	21.4%	56.6%
	b26	Assist you in reflecting on improving your teaching practices	2.97	0.560	0.532	29.5%	43.4%
	b34	Appear to be comfortable to talk to about teaching	3.68	0.666	0.587	14.5%	63.6%
	b32	Allow you to teach as often as you want to	3.67	0.649	0.573	13.9%	64.7%
	b61	Allow you flexibility in planning for teaching	3.38	0.667	0.458	18.5%	57.2%
	b1	Address your teaching anxieties	2.91	0.692	0.443	32.4%	38.7%

System requirements

Concerning system requirements, the two highest responses referred to observing in class when the trainee was teaching, with 54.9%, followed by discussing the subject's aims with 48%.

The responses with the lowest value--28.9%--jointly related to discussing school policies related to teaching and learning and explaining the CAPS (Curriculum Assessment Policy Statement) document.

Table 2. System requirement attributes - Specification and pattern matrix of latent constructs in the questionnaire

Hox	**Item number**	**Item**	**Mean value of an item**	**Factor loading**	**Communality**	**Combining Never & Rarely (1 &2)**	**Combining Often & Always (4 & 5)**
	Factor 2 – System Requirements (SR) Cronbach alpha=0.930; Items=11; Mean Scale Score=2.71 (p<.001);Specification=Reflective						
	b60	Show you an example of an ATP for the subject	2.88	0.755	0.741	31.8%	41.6%
	b17	Observed you in class when you were teaching	3.42	0.784	0.695	20.2%	54.9%
	b38	Explain what the school requires from you as a student teacher	2.63	0.866	0.650	41.6%	34.7%
	b43	Explain to you how the school deals with barriers to learning among learners	2.61	0.783	0.649	35.8%	33.5%
	b62	Explain the school's Disciplinary Code of Conduct for learners to you	2.50	0.749	0.642	40.5%	32.9%
Ho_2	b19	Explain the CAPS documents to you	2.43	0.800	0.640	52.6%	28.9%
	b2	Explain the school's Teacher Conduct Policy to you	2.54	0.723	0.610	41.0%	31.2%
	b52	Explain how the school promotes parental involvement in their children's' education	2.62	0.553	0.599	35.8%	33.5%
	b35	Discuss what is expected from you by the university i.t.o. teaching	2.64	0.557	0.596	40.5%	34.7%
	b6	Discuss the school policies used for teaching	2.47	0.508	0.570	48.6%	28.9%
	b12	Discuss the aims of teaching your subject	3.02	0.628	0.473	31.2%	**48.0%**

Pedagogical Knowledge

Relating to Pedagogical Knowledge, the highest two responses related to showing content expertise and discussing content knowledge, as indicated by 69.4% and

54.3% of the participants, while the statement with the lowest response of 34.7% was associated with assisting the student with timetabling issues.

Table 3. Pedagogical knowledge attributes - Specification and pattern matrix of latent constructs in the questionnaire

Hox	**Item number**	**Item**	**Mean value of an item**	**Factor loading**	**Communality**	**Combining Never & Rarely (1 &2)**	**Combining Often & Always (4 & 5)**
		Factor 3 – Pedagogical Knowledge (PK) Cronbach alpha=0.957; Items=15; Mean Scale Score=2.99 (p<.001); Specification=Reflective					
Ho3	b49	Show you how to assess the learners' learning effectively	2.95	0.727	0.814	32.4%	46.2%
	b3	Show content expertise	3.82	0.728	0.802	11.0%	69.4%
	b58	Share with you areas which he/she (mentor) find it difficult to teach	2.89	0.882	0.796	32.4%	39.9%
	b33	Provide you with strategies to solve teaching problems you encountered	3.13	0.724	0.790	24.3%	47.4%
	b25	Guide you with your lesson preparation	2.78	0.747	0.763	37.0%	37.6%
	b42	Give you clear guidance for planning to teach your lessons	2.85	0.729	0.758	32.9%	43.9%
	b24	Discuss with you the (content) knowledge you need for teaching your subject(s)	3.21	0.874	0.713	30.6%	54.3%
	b51	Discuss with you questioning skills for effective teaching	2.84	0.777	0.712	30.1%	42.2%
	b40	Develop your strategies for teaching	2.87	0.681	0.697	31.8%	42.8%
	b36	Assist you with time-tabling your lessons	2.69	0.546	0.665	39.3%	34.7%
	b44	Assist you with preparing your lecturer crit lessons	2.68	0.772	0.658	37.6%	37.0%
	b53	Assist you with classroom management strategies for teaching	2.98	0.779	0.658	26.6%	45.7%
	b22	Assist you in implementing different teaching strategies	3.03	0.710	0.609	31.2%	45.1%
	b7	Assist you in finding teaching resources	3.35	0.525	0.550	30.6%	**53.2%**
	b28	Assist you in developing your teaching strategy	2.83	0.598	0.523	32.9%	40.5%

Modelling

The highest two values related to modelling were showing enthusiasm when teaching and showing expertise when teaching the subject, as indicated by 55.5% and 51.4% of the participants. The lowest response of 35.3%, which related to reiterating the importance of well-designed activities.

Table 4. Modelling attributes - Specification and pattern matrix of latent constructs in the questionnaire

Hox	**Item number**	**Item**	**Mean value of an item**	**Factor loading**	**Communality**	**Combining Never & Rarely (1 &2)**	**Combining Often & Always (4 & 5)**
		Factor 4 – Modelling (M) Cronbach alpha=0.916; Items=8; Mean Scale Score=3.01 (p<.001); Specification=Reflective					
Ho4	b39	Use subject language from the current CAPS	2.90	0.711	0.821	34.1%	38.7%
	b37	Use hands-on materials for teaching	2.87	0.752	0.723	36.4%	37.6%
	b45	Show expertise to teach his/her subject effectively	3.13	0.778	0.705	28.3%	51.4%
	b27	Reiterate the need to have well-designed activities for the learners	2.70	0.814	0.684	41.0%	35.3%
	b4	Model effective classroom management when teaching	3.31	0.774	0.642	26.0%	50.9%
	b56	Model different teaching strategies for teaching the subject	2.89	0.720	0.637	30.1%	42.2%
	b54	Model (show) how to teach difficult concepts (aspects)	2.84	0.582	0.568	32.9%	37.6%
	b48	Display enthusiasm when teaching the subject	3.42	0.660	0.563	17.9%	**55.5%**

Feedback

Concerning feedback, observing the student teaching before providing feedback and providing oral feedback on lessons taught had jointly the same response of 53.8%. The lowest value referred to electronic feedback, which was 22.5%.

Table 5. Feedback attributes - Specification and pattern matrix of latent constructs in the questionnaire

Ho_x	Item number	Item	Mean value of an item	Factor loading	Communality	Combining Never & Rarely (1 &2)	Combining Often & Always (4 & 5)
		Factor 5 – Feedback (F) Cronbach alpha=0.900; Items=8; Mean Scale Score=2.96 (p<.001); Specification=Reflective					
Ho_5	b5	Review your lesson plans (before teaching)	2.56	0.501	0.635	43.4%	28.3%
	b47	Provide you with written feedback on your teaching lessons	3.04	0.738	0.691	35.3%	43.9%
	b50	Provide you with oral feedback on your teaching technique	3.38	0.778	0.689	20.2%	53.8%
	b46	Provide electronic feedback on your teaching	2.09	0.569	0.639	53.2%	22.5%
	b8	Observe you teach before providing feedback	3.36	0.754	0.629	24.3%	53.8%
	b29	Give clear expectations regarding the way you should teach your subject(s)	2.97	0.630	0.504	33.5%	43.4%
	b21	Discuss the evaluation (assessment) of your teaching	3.21	0.596	0.549	31.8%	48.0%
	b15	Clearly articulate what you need to do to improve your teaching	3.06	0.578	0.519	28.9%	41.6%

ICT Pedagogical Knowledge and ICT Modelling

Concerning ICT Pedagogical Knowledge and ICT Modelling, it was found that all statements related to these factors result in the highest value being 34.7% regarding displaying ICT expertise and the lowest being 24.9% concerning modelling how to use ICT for teaching and learning.

The data revealed that two of three (n=119; 68.8%) PGCE student teachers expressed a desire to return to their mentor-teacher for further mentoring, while approximately one-third (n=54; 31.2%) were unwilling to do so. Approximately 72% (125) of these possible returnees were female. A statistically significant correlation (r_{xy}=.476; p<.001) was found between a respondent's willingness to return and the number of lessons assessed by the mentor..

Table 6. ICT pedagogical knowledge and ICT modelling attributes - Specification and pattern matrix of latent constructs in the questionnaire

Hox	**Item number**	**Item**	**Mean value of an item**	**Factor loading**	**Communality**	**Combining Never & Rarely (1 &2)**	**Combining Often & Always (4 & 5)**
		Factor 6 – Pedagogical Knowledge – ICT (PKICT) Cronbach alpha=0.936; Items=5; Mean Scale Score=2.44 (p<.001); Specification=Reflective					
Ho6	b30	Display ICT expertise to teach the subject	2.51	0.770	0.720	35.3%	34.7%
	b10	Discuss with you how to use ICT for teaching and learning in your lessons	2.52	0.721	0.706	46.2%	32.4%
	b18	Discuss how to use ICT in non-traditional ways for teaching and learning	2.38	0.793	0.705	46.8%	25.4%
	b31	Develop your strategies for teaching with ICT	2.27	0.791	0.702	47.4%	30.6%
	b13	Assist you with using ICT in non-traditional (innovative) ways for teaching and learning	2.51	0.675	0.693	43.4%	27.2%
		Factor 7 – Modelling – ICT (MICT) Cronbach alpha=0.851; Items=2; Mean Scale Score=2.40 (p<.001); Specification=Reflective					
Ho7	b16	Show you how to use ICT for teaching and learning	2.39	0.704	0.709	43.4%	27.2%
	b14	Model how to use ICT for teaching and learning	2.40	0.821	0.649	47.4%	24.9%

The interpretation of the data presented in the tables will be attended to in the discussion section A summary concerning the group statistics related to the ANOVA-test, equality of the group means, and the null hypotheses are presented in Table 7. The results show that the F-ratios and chi-square values were statistically significant ($p < 0.05$). Seven null hypotheses of equal group differences in the dependent variable had to be rejected, favouring the alternative hypotheses.

Table 7. Results of null and alternative hypotheses tests

Latent variable	Null hypotheses				Alternative hypotheses			
	Wilks' lambda	F approx.[a]	P-value	Decision	Pearson's R	Chi-Square	P-value	Decision
PA	.561	134.057**	.000	Reject Ho_1	.663**	173.000	.000	Accept Ha_1
SR	.674	82.727**	.000	Reject Ho_2	.571**	163.685	.000	Accept Ha_2
PK	.607	110.559**	.000	Reject Ho_3	.627**	169.895	.000	Accept Ha_3
M	.524	155.237**	.000	Reject Ho_4	.690**	173.000	.000	Accept Ha_4
F	.666	85.897**	.000	Reject Ho_5	.578**	173.000	.000	Accept Ha_5
PKICT	.765	52.637**	.000	Reject Ho_6	.485**	130.639	.000	Accept Ha_6
MICT	.773	50.304**	.000	Reject Ho_7	.477*	67.760	.000	Accept Ha_7

Lilliefors Corrected. The significance level is 0.05; ** Correlation is significant at the 0.01 level (2-tailed); * Correlation is significant at the 0.05 level (2-tailed); Source: Survey data.

Discussion

The alternate hypotheses stating that statistically significant positive relationships exist between a mentor teacher's personal attributes or actions (Ha_1), system requirements (Ha_2), pedagogical knowledge (Ha_3), modelling (Ha_4), feedback (Ha_5), ICT pedagogical knowledge (Ha_6), ICT modelling (Ha_7) and the student teacher's self-efficacy and willingness to return to his/her mentor-teacher (or not to return) were accepted for all seven attributes or roles for both those participants who indicated that they would return to the same mentor and for those who indicated that they would not. The findings thus illuminate the importance of these seven factors or roles which a mentor teacher must fulfil.

The findings related to personal attributes highlight a disturbing trend, as most of the combined "often" and "always" responses to individual items resulted in less than sixty percent. This suggests that mentor teachers will have to be made aware of the personal attributes expected by mentees, as fulfilling these roles is vital (Valenčič Zuljan and Vogrinc, 2007; Du Plessis, 2013; Welch et al., 2013). *Support* (b55), *instilling confidence* (b41, b57) and *positive attitudes* (b11), as well as *addressing teaching anxieties* (b1) are personal attributes that have the potential to promote self-efficacy,

i.e., "people's beliefs in their capabilities to produce desired effects by their own actions" (Bandura, 1997, p. vii). In Maddux's (2002, p. 278) own words, self-efficacy "is what I believe I can do with my skills under certain conditions. It [Self-efficacy] is not concerned with what I believe I *will* do but with what I believe I *can* do" and thus not "I believe I *will* do but what I believe I *can* do."

The verbal persuasion of the mentor as a personal attribute role function could potentially invoke emotional and physiological states, assist with imaginary performance or the visualisation of performance within the classroom space, which could result in potential mastery experiences that promote self-efficacy. The WIL experience is indeed a challenging one, during which the mentee must overcome several difficulties in the learning classroom space because of their inexperience. It is important to build the mentee's self-efficacy through verbal persuasion and interaction by the mentor to promote *'I believe I can do'* thinking, despite the obstacles faced during school-based learning. Personal attributes are valued by mentees (Baartman, 2016) and afford opportunities to promote personal growth (Jita and Munje, 2022), which again could promote self-efficacy.

Regarding system requirements, the Likert scales showed that all but one statement resulted in a score of less than fifty per cent when the results of "often" and "always" were combined: *showing an example of an ATP* (b60), *observing the mentee while teaching* (b17), *explaining school requirements* to the mentee (b48), *explaining the CAPS document* (b19), *explaining the school teacher conduct policy* (b2), *learner disciplinary code* (b62), and *what is expected by the university* (b35). This could potentially fail to develop the participating student teachers' self-efficacy within this dimension and leave them not feeling capable regarding system requirements.

Feedback is an aspect that is mandated by the Faculty of Education and by the Department of Higher Education and Training (2015). The findings showed that although mentees appear to be teaching a great deal, feedback was not provided in all instances and was completely absent in some instances. This became evident as 35.3% indicated that they received feedback between one and five times, 17.9% between 6 and 9 times, and 11% between ten and nineteen times, while 30.1% indicated that no feedback was received. The importance of constructive feedback is stressed by Valenčič Zuljan and Vogrinc (2007), Du Plessis (2013) and Moosa and Rembach (2018); however, the findings seem to concur with Hugo (2018), Baartman (2016) and Moosa and Rembach (2018) that constructive feedback is not always

provided, as shown by the large percentage of mentees who indicated that they did not receive any feedback.

The Likert scale items on feedback showed that, when "often" and "always" were combined, all but two statements resulted in a score of less than 50% per statement. It appears that *lesson plans were seldom reviewed by some of the mentors* (b5), while *oral* (b50) and *written feedback* (b47) was also low. That data suggests that there was also *not great clarity provided on what had to be done to improve* (b15). Overall, the findings suggest that the development of mentees' self-efficacy concerning verbal persuasion related to the mentees' mastery experiences is thus not receiving the attention it should. It is argued that this could also affect the emotional and physiological states (Kram, 1985) of the mentee. This is based on our position that the low frequency of these items suggests that the mentee's self-efficacy perception of *'I can'* despite challenges and unforeseen barriers (Bandura, 1997; Maddux, 2002) is not as well cemented as it could be. If the *'how to improve'* feedback is not explicitly defined, this could negatively impact the development of the mentee's self-efficacy through verbal persuasion. Findings confirm the importance of constructive positive feedback (Hudson, 2004, 2009; Fuentes-Abeledo, González-Sanmamed, Muñoz-Carril and Veiga-Rio, 2020; Pandee, Tepsuriwong and Darasawang, 2020); Martins et al., 2015; Vršnik Perše et al., 2015; Valenčič Zuljan and Marentič Požarnik, 2014), since feedback allows for the promotion of verbal persuasion, which could promote self-efficacy.

The data showed that pedagogical development of the mentees was also not receiving the attention it should have, with *showing content expertise* (b3), *discussing content* (b24), and *assisting to find teaching resources* (b7) as the only items measuring more than 50%. *Showing mentees how to assess* (b49), *providing strategies to solve teaching problems* (b33), *guidance with lesson preparation* (b25), *discussing questioning skills* (b51), *developing the mentee's teaching strategies* (b40), and *assisting with both classroom management strategies* (b53) and *different teaching strategies* (b22) were all below 50%. This picture is of great concern, as it does not depict a positive growth experience regarding learning from the mentors pedagogically; this could impede the personal growth and self-efficacy of mentees. Assisting mentees to develop the above-mentioned aspects is crucial, as this could instil imagining or visualising of self-efficacy experiences related to these aspects (Maddux, 2002; Martins, Costa and Onofre, 2015), which again can influence the mentee's possible implementation of these aspects which then could result in mastery experiences (Bandura, 1997).

Pandee et al. (2020, referencing Woolfolk, Hoy and Spero, 2005) posit that the practicum has the potential to shape and change the self-efficacy of mentees.
It could thus impact their confidence, capabilities and efficacy related to the classroom space if mentors do not provide feedback on the *'how to'*. Valenčič Zuljan and Vogrinc (2007) have posited that an expert teacher might not necessarily be a good mentor to an inexperienced teacher (or mentee), since the expert might not be aware of the goals and roles of a mentor. It is thus possible that some of the mentor-mentee matches were not a good fit because the mentor lacked skills and knowledge of the roles that a mentor must fulfil, and this should be planned for by means of professional development (see Baartman, 2016; Hugo, 2018; Moosa and Rembach, 2018, 2020).
A similar trend was found related to modelling. Only three statements resulted in scores between 50% and 56%: *showing expertise to teach effectively* (b45), *modelling effective classroom management* (b4), and *displaying enthusiasm when teaching* (b48). Statements related to *using hands-on materials* (b37), *modelling different teaching strategies* (b56) and *showing how to teach difficult concepts* all resulted in scores below 50%. The results thus imply that mentors should not underestimate the value of how they teach, i.e., their modelling, as their examples might inculcate certain trends and beliefs in their mentees (see Du Plessis, 2013; Baartman, 2016; Moosa and Rembach, 2018), even beliefs that might negatively influence the mentee's self-efficacy. The importance of observation to promote self-efficacy cannot be underestimated (Bandura, 1997).
ICT pedagogical knowledge and ICT modelling statements were all below fifty percent, ranging between 24% and 35%. It is evident from these results that both modelling and pedagogical instruction related to ICT were experienced as occurring never or rarely. This finding suggests that ICT implementation at schools for teaching and learning appears not to be receiving the attention that it should, which could be attributed to the fact that analysis of data from the Department of Basic Education (2015, 2016) and BusinessTech (2018) shows that most schools in the Eastern Cape Province where this study was undertaken have been denied access to ICT related resources and internet access. The lack of the necessary resources could have contributed to mentors not utilising ICT resources in their classrooms on a wide scale. However, it is also quite possible that many teachers who do have access to resources, might just not use them, as it could be perceived as an unviable means to embrace teaching and learning; there could, for example, be issues related to

complexity, trial capacity, observability, compatibility and relative advantage (Rogers, 2003) which could influence adoption. Nevertheless, it appears that in developed countries such as Slovenia where there is a massive drive to promote ICT usage for teaching and learning, mentoring ICT modelling by mentor teachers remains very low (Ploj Virtič, Du Plessis and Šorgo, 2021), similar to this South African situation. The overall findings showed that within the adapted seven-factor framework, the mentoring experiences concerning role fulfilment by mentors were not ideally conducive, since the overall role experience was scored within the "disagree" to "strongly disagree" scale. Firstly, this is evident from the quantitative Likert scale questionnaire, which showed that most responses related to these seven factors happening "often" or "always", were below fifty percent, and the two factors about ICT were all below thirty-five percent. The findings concur with Zeichner's (1980) position that there is a myth that the practicum has only positive outcomes.

Perhaps it is time to note that less WIL at school could become more if trainees mentees are placed with a mentor who does exhibit most, if not all, the mentoring roles, since mere duration does not imply enhanced learning (Fuentes-Abeledo et al., 2020, citing Capraro, Capraro and Helfeldt, 2010 and citing Ronfeldt and Reininger, 2012). Research by Dlengezele (2020) and Baartman (2016) have found that in many instances, but not all, mentors are not complying with the Hudson Five-Factor framework. The research findings reported in the *'Mentoring research findings in South Africa'* section portray a similar picture related to our seven-factor framework. It is thus important that mentors be informed that mentees want to grow at the level of personal attributes, at the system requirements level, the pedagogical knowledge level, the modelling level, the feedback level, the ICT pedagogical level and the ICT modelling level; however, our findings suggest that this was not the case, which concurs with the findings of Baartman (2016) and Moosa and Rembach (2018) that this is something to be addressed in the South African context. Secondly, it is a great concern that ICT related findings paint a sombre picture, yet the Department of Basic Education (2015, 2016) highlighted ICT usage in schools as a priority. Thirdly, that 31.2% of the participants indicated that they were not prepared to return to the same mentor also raises concern. Fourthly, it is evident that mentors should be better prepared for their mentoring roles, as the results of our findings suggest that this is not the case, and this could be done through greater collaboration between schools and university lecturers (Du Plessis, 2013; Moosa and Rembach, 2020), training for

mentors about their role and its importance (Baartman, 2016; Hugo, 2018) and short courses and workshops (Moosa and Rembach, 2018).

Conclusion and limitations

The findings showed that all seven roles were valued by both those willing to return to their mentor and those who were not. Nevertheless, a significant concern is that a large group of mentees was not prepared to return to their mentor teacher. Our research was unable to provide definitive reasons beyond the results concerning the seven factors. However, the 31.2% could, for example, be attributed to the fact that mentors are insufficiently informed about what is required of them, or (and) it could be ascribed to mentors being unwilling to fulfil a mentoring role, but are *'forced'* to fulfil this role because not enough mentors are available at a particular school, mentors being inexperienced and (or) even mentor teachers not having time to fulfil their mentoring obligations due to curriculum demands, administrative load and (or) the large number of classes for which they are responsible (see Ngibe et al., 2019). At the same time, it could be that an expert teacher is not necessarily a good mentor teacher (Valenčič Zuljan and Vogrinc, 2007), or that experience is overrated, as Feiman-Nemser (1998, p. 64) posits, "experience is not always a reliable or trustworthy teacher". However, it was positive to note that both groups—those willing to return and those unwilling to do so--highly valued the importance of the seven mentoring roles from the hypothesis testing side.

Our research did not measure self-efficacy per se; however, we postulate that WIL has the potential to enhance mastery experiences; observation of mentors promoting mastery experiences, and feedback after lessons could promote verbal persuasion, while the aspects leading up to, during and after a lesson could promote these physiological states (Martins, et al., 2015), thus highlighting the importance of modelling and feedback by the mentor. If what Martins et al. (2015) contend is indeed the case, then regular interaction between mentor and mentee related to the aspects within the adapted seven-factor framework of Hudson (2004, 2009) and Hudson et al. (2005) proves invaluable, as these factors afford opportunities to promote mentee self-efficacy through social persuasion, vicarious experiences, emotional arousal (Bandura, 1997) and imagining or visualising experiences (Maddux, 2002).

It is evident that more exploration of mentoring is required. We propose focusing on research to ascertain what mentor teachers perceive to be their roles, degree of readiness, needs, challenges, and expectations and more student teachers' mentoring experiences. Such findings could highlight perceived experiences and assist in the development of a student and teacher mentoring programme to enhance the interest of those participating.

Finally, the importance of professional development to induct and prepare mentor teachers on a much larger scale must be addressed, otherwise future research results might report similar findings.

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