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Tumu College of Education trainee teachers' perceptions of mentors' pedagogical knowledge

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Abstract

The study accessed the perceptions of final year students in the Tumu College of Education towards the Pedagogic Knowledge (PK) of their mentors. It also investigated whether statistically significant differences existed in terms of mentees' gender and programmes of study regarding the pedagogic knowledge of their mentors. The study used a census method to collect data from respondents for the study by distributing a closed-ended five-point Likert scale on Perceptions of Knowledge and Skills in Teaching (PKST) Questionnaires to all 215 students pursuing Early Grade and Primary Programmes, with an 84.2% (181) return rate. However, 175 respondents' data were used, as six of the questionnaires contained incomplete data. Findings of the study revealed that participants perceived their mentors as having a high measure of PK, with an overall mean value for the student teachers 'perceptions of their mentors PK of 3.62 (SD =.77). The study also revealed that there was no statistically significant difference in the perceptions of student teachers towards the PK of their mentors in terms of gender or programme of study. However, the study revealed that participants perceived their mentors to be less competent in effectively incorporating information and communication technology (ICT) in the classroom. It is recommended that the Ministry of Education and Ghana Education Service organise capacity building workshops for teachers to improve their competencies in integrating ICT in their classrooms.

Keywords: Mentoring, Pedagogical knowledge, Supported Teaching in Schools (STS), Pre-Service teachers, Mentees.

Introduction

In the 1960s, Ghana had one of the best systems of education in Sub-Saharan Africa (Ministry of Education, 2017a). However, the system of education started to decline over the years,

resulting in poor learning outcomes (Ministry of Education, 2012). Due to this, stakeholders continue to raise concerns about improving teachers' quality, knowing the pivotal role teachers play in education (Asare & Nti, 2014). Guerriero (2014) observed that teacher education locates itself at the nexus between theory and practise in education. The philosophy of Ghana's teacher education is to, among other things, train teachers to have skills of creativity and innovation, passion for life-long learning, requisite professional knowledge, values and attitudes, as well as teachers who will have the capacity to adapt to emerging challenges. It also aims at training teachers to be adept at handling inclusion and other cross-cutting issues in the curriculum (Ministry of Education, 2017b).

The new era also requires teachers who are able to develop critical core-skills in their learners through the use of creative pedagogies. Consequently, after more than twenty years, the country has developed another framework for teacher education as a deliberate intervention to train teachers for the pre-tertiary levels of education who will be able to tackle learning deficits among learners. Major provisions have been put in place to realise the country's teacher education philosophy. These include the 2008 Education Act (Act 778) and the 2012 Colleges of Education Act (Act 847). These two legislations have led to the development of the National Teacher Education Curriculum Framework, which contains four pillars; and the National Teachers' Standard, which also contains three domains, for training teachers to fulfil the expectations of the 21st century. Pedagogical knowledge is a common theme in both.

One major concern the previous teacher education reforms are accused of is "academic drift". Guerriero (2014), particularly lamented that teachers' pedagogic knowledge has not received the required attention, as more attention seems to be concentrated on teachers' content knowledge. They are criticised for being heavily skewed towards offering teachers subject-content knowledge to the neglect of imbibing in them the needed balance of pedagogic knowledge for delivering in the classroom (Ministry of Education, 2017a).

Sub-Saharan Africa is the region with the worst indicators in terms of the minimum required pedagogical knowledge of in-service teachers (UNESCO, 2018). Based on this, pedagogical knowledge is one of the critical pillars of Ghana's 2018 teacher education reform. The National Teacher Education Curriculum Framework (NTECF) places 25%, 25% and 20% weight of credit hours on teachers' pedagogic knowledge for Kindergarten, Primary and Junior High School levels respectively (Ministry of Education, 2017a).

A good teacher education programme must streamline issues of pedagogy (Patel, 2018). Pedagogy is a competency that involves general learning theories, behaviour and classroom management, instructional strategies, and assessment practises, among others. This underscores the assertion of Guerriero (2014) that the pedagogic knowledge of a teacher helps to realise impactful teaching.

One approach for providing pre-service teachers/mentees with pedagogic knowledge is through Supported Teaching in Schools (STS). STS is at the core and pivot of the Bachelor of Education (B.Ed) programme. It is the fourth pillar of the current National Teacher Education Curriculum Framework (NTECF) in Ghana. The NTECF requires every trainee teacher to undergo a total of 48 credit hours of observing and learning from their mentors in partner schools. It translates into 30% of the entire teacher education curriculum (University for Development Studies, 2018). The mentors in these schools are charged with the task of helping trainee teachers link the knowledge obtained from their tutors in the college with the actual classroom situation (Hoxha, 2016). In the estimation of Hoxha, this onerous task requires that mentors be chosen based on their level of managerial, subject-based knowledge and wide repertoire of experience. This approach is informed by the Socio-Cultural theory developed by Lev Vygotsky (Jafar, Yaakob, Mustapha, Aziz, Yusof & Awang, 2021) and the Social Cognitive approach to learning also developed by Albert Bandura.

Researchers use the Social Cognitive theory as a basis for predicting behaviour in various settings, including education. They have been able to understand and apply the theory in relation to the variables in the area of pedagogical potentials in education (Abdullah, Hassan, Abdelmagid, & Ali, 2020). For instance, Alshobramy (2019) investigated the effectiveness of Bandura's social learning theory in learning English speaking skills. Findings of the study revealed that the theory could consolidate creativity, learnability, attention, and help students speak the language fluently. Similarly, Samsudin, Shamsudin and Arif (2017) used the theory in their research to find out its application in teaching academic writing among students at College University Poly-Tech MARA, Kuala Lumpur.

Statement of the Problem

With the introduction of the B. Ed education programmes at Colleges of Education in Ghana, mentors in placement schools are expected to be well prepared to provide mentoring that will consolidate what the teacher trainees learn in college. These mentors are expected to be model teachers who meet the national minimum standards for teaching. Contrary to these

expectations, Abdulai (2021) revealed that mentors and lead mentors, for instance, find it challenging to perform some of their roles due to a lack of orientation programmes. It is difficult to find mentors with the capability to mentor pre-service teachers as a result of misdirected role expectations (Hamel & Jassko-Fisher, 2011). Researchers warned that if mentors are not well-prepared, prospective teachers may be placed in partner schools where their mentors may be more in need of mentorship than the mentees (Buabeng, Ntow & Otami, 2020; Abdulai, 2021). The consequence of this is counter-socialisation.

Since the introduction of the new teacher education reforms in 2018, there has not been enough research to investigate the capacity of mentors in terms of their general pedagogic knowledge, especially from the perspective of student teachers. Studies (Buabeng et al., 2020; Dankwah, Nyarko, & Mensah, 2021: Tengepare, 2020) carried out on the STS component of the B. Ed programmes have not explored the perceptions of student teachers about the pedagogic knowledge of their mentors. The available literature on the topic is also either remote from Ghana (Hudson, 2004a; Jafar, et al., 2021) or conducted in different disciplines like medical practise (Kamarudin et al., 2021). The work of other researchers (Choy, Wong, & Lim, 2013) turns to measuring perceptions beginning teachers hold about their own pedagogical knowledge and skills. A similar study conducted by Azure (n.d) also investigated the perceptions of pre-service science teachers towards the pedagogical knowledge of mentors in senior high schools. In each of those investigations, the perceptions of College of Education students towards the pedagogic knowledge of their mentors in Ghana have not been explored, hence this study.

Purpose of the Study

This study sought to investigate the perceptions of College of Education students towards the pedagogic knowledge of their mentors. Also, the study sought to find out whether there are statistically significant differences in the perceptions of male and female students of the Tumu College of Education towards the pedagogic knowledge of their mentors in the Sissala East Municipality. Moreover, it also sought to determine whether there is any statistically significant difference in the perceptions of trainee teachers of different specialisms towards the pedagogic knowledge of their mentors.

Research Question

The following research question guided the study: What are the perceptions of Tumu College of Education students towards the pedagogic knowledge of their mentors?

Hypotheses

The following hypotheses were tested:

1. H_o: There is no statistically significant difference in the perceptions of male and female Tumu College of Education students towards the pedagogic knowledge mentors.

   H_1: There is a statistically significant difference in the perceptions of male and female Tumu College of Education students towards the pedagogic knowledge of mentors.

2. H_o: There is no statistically significant difference in the perceptions of Tumu College of Education students pursuing different specialisms towards the pedagogic knowledge of their mentors.

   H_1: There is a statistically significant difference in the perceptions of Tumu College of Education students pursuing various specialisms towards the pedagogic knowledge of their mentors.

Significance of the Study

This study will add to the literature on teacher trainees' perceptions of the pedagogic knowledge of their mentors. It will provide useful knowledge to stakeholders in teacher education about these perceptions and how policies and programmes will be fashioned to improve the pedagogic knowledge of mentors to enable them to play their mentorship roles in relation to imparting pedagogic knowledge to student teachers.

Theoretical Framework

The Social Cognitive Theory developed by Albert Bandura is the theoretical framework for this study. Research in observational learning brought more attention to the work of Albert Bandura and his peers in the 1960s and 1970s (Fryling, Johnston & Hayes, 2011). Their investigations were partly aimed at questioning the assumptions and prepositions of behavioural, cognitive and other developmental theories. Bandura (1971) contends that despite the fact that rewards and punishment can ensure learning, their consequences are risky and laborious.

Eventually, Bandura proposed the Social Cognitive approach to learning which is a bridge between behavioural and cognitive explanations of how people learn (Tuckman & Monetti, 2011). It explains how people learn by observing and imitating others (Humeijia, 2021). The theory views learning from the standpoint of both modelling and cognition (Fryling, Johnson & Hayes, 2011). This is evident in the processes involved in the learning process.

Observational Learning Process

In mentoring, there are some aspects including direct observation that are very essential (Capan & Bedir, 2019). This emphasizes the role of observation in mentoring as put forward by Albert Bandura. Tuckman and Monetti (2011), and Bandura (1971) identified four processes in observational learning. These include attentional process, retention process, motoric reproduction process, and reinforcement and motivational processes.

One major component of the learning process is the attentional process. Bandura (1971) submitted that adequate learning cannot occur if the learner fails to pay attention and identify the most important features of the model's behaviour. Bandura clarified that merely exposing a learner to a model will not guarantee attention. According to Tuckman and Monetti (2011), modelled event factors (simplicity, conspicuousness, relevance, and functional value), and observer related factors (perceptual capacities, predispositions, preferences, and level of emotion) determine whether the individual will attend to a model or not. Beyond that, the nature of events and the type of model available also influence the attention of a mentee to the model (Tuckman & Monetti, 2011). Models who are attractive, interesting, knowledgeable, and also exhibit winsome attributes command attention, unlike models who are displeasing (Bandura, 1971). Mastery of subject matter, skills in pedagogy, ability to design assessment (Jafar et al., 2021); demonstration of best teaching; positive role models; revered leaders in teaching; awareness of the needs and concerns of novice teachers; commitment to their professional development and peers (Arnold; Blank & Kershaw; cited in Chien, 2014); and keeping professional standards (Hoxha, 2016) are some of the factors that identify an effective model who is emulated from an ineffective model who is ignored by student teachers.

Mentoring

Megginson and Clutterback were the first to coin the concept to describe how more knowledgeable professionals (experienced teachers) support less experienced ones to get familiar with teaching procedures (Carrosa, Rosas-Maldonado, & Martin, 2019). Other experts have also given other definitions. Mentoring is an interaction that exists between an experienced teacher (in-service teacher) and a mentee (teacher trainee or student teacher) where the mentor gives different forms of assistance, including technical, emotional, and pedagogical support to the mentee (Mafugu, 2022). Also, Olumbe and Kiarie (cited in Bwiruka, Maani, & Ssetumba, 2021) explained the concept as a relationship between a qualified teacher (in-service teacher) and a novice teacher (student-teacher) aimed at providing assistance to the novice

teacher to find solutions to difficult social problems. This relationship is targeted at developing the competencies of the mentee (Bwiruka et al., 2021).

The influence of mentoring on teacher preparation cannot be overemphasised. The assertion of Legg-Jack and Ndebele (2022) gives clarity to this when they indicate that several research findings have corroborated the influence of mentoring as very powerful in helping student teachers develop the needed skills and domain of competencies for the teaching profession. The role of mentor teachers, among other things, includes modelling novice teachers during practicum in designing instructions, managing classrooms, and assessing learners (Bwiruka et al., 2021). According to Mafugu (2022), mentoring provides a dialogue where the mentee and mentor deliberate on various practises, including lesson planning, assessment, evaluation, and reflective experiences. All these are domains of pedagogical knowledge.

Pedagogical Knowledge

Shulman (1986) introduced this concept to illustrate a type of content knowledge that is wider than just subject matter and includes the specific body of knowledge that is germane to the teachability of content. According to Shulman (1986), it is knowledge that makes subject matter understandable to learners. Shulman (1987) referred to the concept as "broad principles and strategies of classroom management and organisation that appear to transcend subject matter" (p. 8). Voss, Kunter, and Baumert (2011) described pedagogical knowledge as the knowledge required to provide and fully utilise teaching and learning across areas of study, as well as different forms of knowledge in classroom management, teaching techniques, assessment, and managing heterogeneous learners.

The University for Development Studies (2018) identified four major pillars for teacher-education in Ghana as follows: Subject and Curriculum Knowledge, Literacy Studies, Supported Teaching in School, and Pedagogic Knowledge. The framework described pedagogic knowledge to involve "general pedagogic knowledge, assessment strategies, introduction to and development of cross cutting issues, education studies, preparation for supported teaching in school, classroom enquiry and research, inclusion and equity, SEN and ICT" (p. xiv). Hudson (2004b) identified "a correlated and statistically significant five-factor model for mentoring". These include, personal attributes, system requirements, pedagogical knowledge, modelling, and feedback. Hudson underscored the need for pedagogical knowledge for developing effective teachers. Consequently, Hudson reviewed eight studies

and reported that a total of eleven mentoring characteristics were identified as pedagogical knowledge. These include: planning for teaching, timetabling, lesson preparation, teaching strategies, classroom management, questioning skills, problem solving, content knowledge, implementation, assessment, and offering viewpoints.

Leijan, Malva, Pedcaste and Mikser (2022) also reviewed literature on 23 articles on the topic and identified six dimensions of pedagogic knowledge as lesson planning, instructional strategies, classroom management, assessment, general learning processes, and students' diversity. Also, Guerriero (2014) identified the following dimensions of pedagogical knowledge from different models: classroom management, learning processes, teaching methods, classroom assessment, individual students, structure, and additivity. This study, however, relied on the categorization offered by Gökçek and Yılmaz (2019). In their study, they identified six categories of teachers' PK, namely, student learning, lesson planning, instructional support, accommodating diversity, classroom management, and care and concern. From the literature, the various categorizations share similarities with minimal variation in the naming.

Student learning: Gökçek and Yılmaz (2019) identified encouragement, getting the attention of learners, critical thinking, and motivation as part of the indicators of student learning that teachers should demonstrate in their teaching. Guerriero (2014), on his part, defined it as promoting individual learners' achievement and possessing competent knowledge in motivation.

Lesson planning*:* According to Gökçek and Yılmaz (2019), it involves preparing lesson plans and the relevant resources for teaching. This is guided by the curriculum and the right teaching techniques for the subject matter. Planning lessons is a way of making instructional delivery intentional and meaningful (Choy et al., 2013). It enables teachers to plan and explain what they do and why they do it to stakeholders.

Instructional support: This deals with choosing relevant teaching and learning materials as well as knowledge of assessment strategies; it also incorporates the use of ICT (Gökçek & Yılmaz, 2019). Teachers are expected to be aware of the goals of the curriculum for various learning grades and the resources that are required to help learners accomplish those goals to meet national standards (Choy et al., 2013).

Accommodating diversity*:* Choy et al. (2013) stressed that the increasing diversity of enrollment in schools and classrooms requires teachers to be competent in handling learners

with different needs. Regulations and policies on education expect all learners to be catered for in inclusive classrooms, hence the need for teachers to be mindful of their biases. Guerriero (2014), on his part, called for the need for teachers to be adept at handling heterogeneous learners through additivity.

Classroom management*:* This involves providing a learning environment that will stimulate higher cognitive domains of learning (Choy et al., 2013). Teachers are expected to be competent in organising classrooms that will reduce distractions. It also includes appropriately handling the behaviour of learners and disciplinary issues (Gökçek & Yılmaz, 2019). This is necessary to optimise the quality of learning time, and teaching at a steady rate, among other things (Guerriero, 2014).

Care and concern**:** Gay, cited in Choy et al. (2013), explained that caring is a foundational aspect of successful teaching and learning, and its absence creates differences in educational attainment for learners with varied backgrounds. Care and concern create a good rapport between teachers and learners. Gökçek and Yılmaz (2019) indicated that care and concern involve meeting the needs of learners and their capacity to stand stress.

Empirical Review

Jafar et al. (2021) conducted a study to ascertain the perspectives of trainee teachers on the quality of mentoring by mentors in Malaysia. The study used a mixed-methods approach where interviews and questionnaires were used to collect data. A sample of 217 trainee teachers were sampled using the random sampling technique. Results of the study showed that trainee teachers perceived the quality of mentoring to be at a very high level. In terms of the PK of mentor teachers, Simsar and Dogan (2020) surveyed the views of 96 pre-service early childhood teachers and 41 mentors in a descriptive study and reported that respondents (pre-service teachers) viewed their mentors as demonstrating PK and other mentoring practises.

Kamarudin et al. (2021) studied the perceptions of both trainee medical students and that of mentors towards medical training at the Universiti Kebangsaan Malaysia Medical Centre. The cross-sectional study involved samples of 382 mentees and 35 lecturers. The study showed that both trainees and mentors had a positive perception of mentorship. The study specifically showed that second- and third-year trainees had higher perceptions compared to fourth-year trainees. Findings of the study show no statistically significant gender differences in trainees' perceptions of mentorship in their medical training. Participants asked for additional training for mentors to improve their skills and knowledge. Similar findings were reported by

Lian et al. (2013). Dankwah et al. (2021) in their study, among other things, sought to find out the perceptions of student teachers about the STS programme at Akrokerri College of Education and also to ascertain if there were statistically significant gender differences among the mentees. A sample of 235 student teachers responded to an online questionnaire. Trainee teachers in the study reported that they perceived the STS programme to be helpful as it consolidated their knowledge and skills. As to whether there were any gender differences, the study found no statistically significant gender differences among trainee teachers in their perceived benefits of the STS programme.

A qualitative study was conducted by Carrrosa et al. (2019), which gauged the views of three novice EFL teachers on their previous mentoring experiences. They used semi-structured interviews to gather data on the areas of the five-factor model developed by Peter Hudson. The study found that participants indicated that their mentors were good at logically presenting lessons to achieve lesson objectives. However, a participant in the study expressed a lack of sequence as it was lacking in lesson planning. The findings of Legg-Jack and Ndebele (2022) show that pre-service teachers reported that they received adequate pedagogical knowledge from mentorship. This study explored the effect of mentoring on pre-service teachers from a South African university and relied on the interpretative paradigm by using a qualitative case study to obtain data by interviewing 26 Bachelor of Education Honours pre-service teachers. Purposive sampling was used to obtain the sample. Similar findings were reported by Chien (2014) in a study that reported that pre-service teachers had positive attitudes towards their teaching practicum experience and their mentors because they had the chance to put together knowledge in the classroom situation, lesson planning, and teaching pedagogy, among other things.

Azure (2015) surveyed 130 student teachers from two colleges of education in Ghana and reported a statistically significant correlation between the respondents' perceptions of their mentors' pedagogical content knowledge in lesson planning, feedback, methods of teaching, and their impact on their classroom deliveries. This was reported by participants after 10 weeks of mentorship. One major finding of the study is that it revealed a statistically significant correlation between mentees' perceptions of the pedagogical content knowledge of their mentors and how it influenced their performances in the classroom.

In another study, Azure (n.d) looked at the perceptions of pre-service science teachers about learning to teach under the supervision of mentor teachers during teaching practise in senior high schools in Ghana. The study used a multiple-design approach that used

questionnaires and focus interviews to collect data. The study sought to investigate the kinds of knowledge and pedagogical skills students perceived to have attained from their mentors by considering the personal attributes of teachers, system requirements, pedagogical knowledge, modelling, and feedback. The study found that 51% of mentors supported mentees in preparing lessons; 37% helped the mentees acquire problem-solving skills; and 44% of mentees reported that their mentors helped them acquire skills in classroom management. However, the study reported mean scores ranging from 2.98 to 3.69 and a standard deviation ranging from 0.95 to 1.47 and concluded that the majority of mentees reported that their mentors did not exhibit pedagogical knowledge. This was later confirmed by Albakri et al. (2021) that the pedagogical knowledge of mentors was at a moderate level since about 50% of study participants said their mentors never showed any good lessons or direction in teaching strategies, questioning skills, assessment, or selection of teaching and learning resources.

The findings of a study conducted by Guillier, Li-Jo, Pedreira, and Sepulveda (2017) concluded that mentors had a small measure of pedagogical knowledge. This was a qualitative study that investigated the preparation received by four pre-service teachers in an English teaching programme at the Universidad Nacional Andrés Bello in Chile. Also, Obielodan, Omojola, Tijani, and Samuel (2020) assessed the pedagogical knowledge and utilisation of ICT by teachers in Kwara State, Nigeria, by administering a questionnaire to 273 respondents out of 333 teachers. The study discovered that the pedagogical knowledge of teachers in ICT for all items was below the benchmark, illustrating the fact that teachers have low pedagogical knowledge in ICT. This was affirmed by Paciente (2022), who revealed that teachers have difficulties incorporating ICT into their lessons as a result of limited pedagogical knowledge. Contrary to Obielodan et al. (2020) and the report of Paciente, a study conducted by Mwinkaar (2018) in Ghana suggested that social studies teachers, for instance, have good pedagogical knowledge. Many of the teachers, however, do not integrate ICT into their lesson delivery. According to Mwinkaar's findings, the teachers believed there was no need to integrate ICT into their teaching because it is a subject that is taught.

Chong, Choy and Wong (2008) conducted a study in Singapore to investigate the perception of pedagogical knowledge and skills in teaching from the perspective of postgraduate diploma in education students who pursued a primary programme. This was a longitudinal study of the perceptions of respondents at the entry and exit points. 170 out of 284 were surveyed using a five-point Likert scale, which contained 34 items. The study revealed

that participants had significantly higher PK than the entry points. The study also reported that participants paid less attention to their affective pedagogical skills.

A review of the literature shows paucity of research exploring the perceptions of college of education students in Ghana of the pedagogic knowledge of their mentors (Hinojosa 2022). This makes it difficult to know whether student teachers truly listen to their mentors during their teaching practise. The fears in this situation also include not being able to tell if the objectives of the STS are being achieved. This study seeks to contribute to the discourse in teacher education that will be germane to the present teacher education reform in Ghana.

Methodology

A descriptive survey design was used to carry out the research. The target population for the study was final year students of the Tumu College of Education in the Upper West Region of Ghana. The final year students were chosen for a number of reasons. First, they have gone through enough credits of STS sessions in different partner schools, are also on their extended teaching practise, and are thought to have an informed understanding of pedagogic knowledge. Second, they are the second batch of B. Ed Programme since its inception and are thought to have gone through a seamless STS session since their training.

The researchers are tutors in the Tumu College of Education who are interested in appreciating the perceptions of student teachers towards the pedagogic knowledge of their mentors in the various placement schools. Since the introduction of B.Ed programmes in Colleges of Education of in the country, to our knowledge, no study has been conducted to investigate the pedagogical knowledge of mentors in partner schools from the perspective of trainee teachers who receive mentorship from these mentors. The literature shows that mentees give attention to mentors who are perceived to be knowledgeable (Bandura, 1971); models who demonstrate mastery of subject matter, skilled in pedagogy, ability to design assessment (Jafar et al., 2021); mentors who demonstrate best teaching, awareness of the needs and concerns of novice teachers, mentors who are committed to their professional development and peers (Arnold; Blank & Kershaw; cited in Chien, 2014); and mentors who keep professional standards (Hoxha, 2016). This illustrates the need to investigate the pedagogical knowledge of mentors from the perspective of trainee teachers in partner schools of the Tumu College of Education.

A census method was used to collect data from the respondents for the study. Questionnaires were distributed to all 215 students pursuing Early Grade and Primary

programmes, with an 84.2% (181) return rate. However, 175 respondents' data were used, as six of the questionnaires contained incomplete data. In terms of gender, 54.3% were male and 45.7% were female. Most of the respondents (65.3%) were pursuing a primary education specialty, and the rest were pursuing early grade programme.

A closed-ended five-point Likert scale questionnaire was used to collect data from respondents for this study. The questionnaire was used to ensure confidentiality and anonymity of respondents since the study sought to measure the perception of trainee teachers about the pedagogic knowledge of their mentors. This will enable stakeholders to appreciate how trainee teachers view their mentors, and whether these mentors meet the expectation of their mentees or not. Knowing the perception of mentees would assist stakeholders to take decisions on choice of mentors and their training needs. Other instruments, including interviews, could have been used, but because it was going to be difficult to assure these 8 respondents of anonymity whilst using interviews, we decided against it. It would have affected respondents' responses due to tendencies of wanting to please their mentors.

The instrument used for the study is the Perceptions of Knowledge and Skills in Teaching (PKST) developed by Guler-Nalbantoglu and Aksu (2021). This was originally developed by Choy et al. (2012). The questionnaire is on a 5-point Likert scale with the following points: 1— "no knowledge at all", 2— "a little knowledge", 3— "some knowledge", 4— "knowledgeable" and 5— "highly knowledgeable". The Cronbach alpha reliability for the whole instrument was found to be.95, and the components were calculated as: student learning (.89); lesson planning (.91); instructional support (.86); accommodating diversity (.92); classroom management (.85); and care and concern (.86).

The data was coded and entered into SPSS. The research question was analysed using percentages, means, and standard deviations. Hypotheses 1 and 2 were tested using the t-test.

Delimitations

This study is a pioneer study which sought to measure the perceptions of trainee teachers in Tumu College of Education of the pedagogical knowledge of their mentors in partner schools. It is delimited to trainee students of Tumu College of Education in the Upper West Region of Ghana. Similar investigations are needed to cover trainee teachers in other Colleges of Education in Ghana before it conclusions can be confidently generalized over a broader spectrum of colleges and other institutions of education.

Results

Research question: What are the perceptions of Tumu College of Education students towards the pedagogic knowledge of their mentors?

This research question sought to find out the perceptions student teachers hold about the pedagogic knowledge of their mentors. The student teachers' evaluations of their mentors' PK performance as a whole averaged 3.62 (SD =.77), with mean scores of the individual items ranging from 3.03 to 4.10. A higher mean value in the study suggested that student teachers evaluated their mentors as having stronger PK. Table 1 shows the mean and standard deviation for each dimension.

Table 1. Dimensions of PK Perceptions: Descriptive Statistics (N=175)

	M	SD
Students Learning	3.71	.80
Lesson Planning	3.65	.90
Instructional Support	3.51	.87
Accommodating Diversity	3.56	.95
Classroom Management	3.70	.87
Care and Concern	3.60	.85

From Table 1, the results revealed that, the mean scores ranging from the highest to the lowest were students learning (M=3.71, SD=.80), classroom management (M=3.70, SD=.87), lesson planning, (M=3.65, SD= .90), care and concern (M=3.60, SD=.85), accommodating diversity (M=3.56, SD=.95), and instructional support (M=3.51, SD= .87). These scores are quite close to one another and are regarded as close to complete knowledge. Descriptive statistics for each item of the various dimensions are shown in Table 2.

From Table 2, it can be seen that the student teachers perceived their mentors to be knowledgeable and competent in “showing care and concern for students” (M = 4.10, SD = 1.06), “Motivating students to work hard”, (M = 3.98, SD = 1.03), “Asking students the right questions to facilitate their learning” (3.91, SD = .92), “Using appropriate forms of assessment”, (M = 3.86, SD = .98), “Applying appropriate classroom management techniques”, (M = 3.84, SD = .98), “Critical thinking in the lessons” (M = 3.81, SD = 1.04), “Managing

student discipline" (M = 3.81, SD = 1.05), as well as "Using student-centred teaching and learning activities" (M = 3.80, SD = 1.12). Similarly, student teachers rated the mentors as knowledgeable in "Choosing appropriate teaching strategies for teaching particular topics" (M =3.78, SD = 1.10), "Designing assessment tools (e.g., written tests, oral tests, science practical, etc.)" (M = 3.70, SD = 1.07), "Showing concern for the holistic development of students" (M = 3.70, SD = 1.06). Ironically, the student teachers rated their mentors' knowledge and skills the lowest in "Incorporating information and communication technology (ICT) effectively in the classroom" (M = 3.03, SD = 1.22), "Managing stress" (M = 3.30, SD = 1.15), "Producing his/her own teaching materials" (M = 3.34, SD = 1.26), "Managing co-curricular activities" (M = 3.40, SD = 1.15) and "Managing individual students' learning effectively" (M = 3.44, SD =1.32)".

Table 2. Descriptive Statistics for PKST

	1-2*	3**	4-5***	M	SD
Students Learning					
1.Developing students' interest in learning.	15.4	23.4	61.1	3.63	1.02
2. Arousing students' interest in his/her teaching.	13.7	25.7	60.5	3.65	.97
3. Critical thinking in the lessons.	13.1	20.0	66.8	3.81	1.04
4. Promoting creative thinking in the lessons.	12.6	28.6	58.9	3.59	1.00
5. Facilitating and stimulating thinking among students.	19.4	25.1	55.4	3.51	1.04
6. Using student-centred teaching and learning activities.	16.9	17.7	66.3	3.80	1.12
7. Motivating students to work hard.	11.4	12.6	76.0	3.98	1.03
Lesson Planning					
8. Choosing appropriate teaching strategies for teaching particular topics.	14.3	20.0	65.7	3.78	1.10
9. Choosing teaching strategies that match students' different ability levels	20.6	20.0	59.5	3.51	1.18

10. Asking students the right questions to facilitate their learning.	8.0	20.0	72.0	3.91.92
11. Translating the syllabus into lessons for teaching.	18.9	22.3	58.8	3.591.12
12. Planning lessons that take into consideration the different abilities of students.	22.9	21.7	55.4	3.471.19
13. Determining appropriate teaching methods	18.3	21.1	60.6	3.631.07
14. Planning student-centred lessons.	21.7	16.6	61.7	3.621.22
Instructional Support				
15. Producing his/her own teaching materials	28.5	20.0	51.5	3.341.26
16. Acquiring appropriate teaching materials for lessons	23.5	23.4	53.2	3.471.16
17. Incorporating information and communication technology (ICT) effectively in the classroom	37.8	24.0	38.2	3.031.22
18. Designing assessment tools (e.g., written tests, oral tests, science practical, etc.)	15.5	22.3	62.3	3.701.07
19. Using appropriate forms of assessment.	12.0	17.7	70.3	3.86.98
20. Acquiring relevant subject matter content for instruction	12.7	26.9	59.4	3.631.05
Accommodating Diversity				
21. Using evaluative feedback to assist students in their progress	18.3	22.3	59.4	3.601.06
22. Teaching according to students' pace.	19.5	22.3	58.3	3.591.10
23. Identifying students' learning difficulties.	17.8	21.7	60.5	3.651.10
24. Responding sensitively to different student needs	20.6	22.3	57.2	3.511.11
25. Managing student learning-groups effectively.	22.3	21.7	56.0	3.481.17
26. Managing individual students' learning effectively.	38.2	0.0	61.7	3.441.32

27. Monitoring students' learning and performance during lessons.	33.7	0.0	66.3	3.631.25
Classroom Management				
28. Applying appropriate classroom management techniques.	10.3	24.6	65.1	3.84.98
29. Managing students with behavioral and learning problems.	17.2	25.1	57.7	3.591.06
30. Using appropriate strategies to monitor student behavior.	17.1	25.7	57.1	3.571.06
31. Managing student discipline.	16	14.9	69.1	3.811.05
Care and Concern				
32. Managing co-curricular activities	26.2	20.0	53.7	3.401.15
33. Managing time effectively	18.8	22.3	58.8	3.621.08
34. Having coping skills	20.6	22.9	56.6	3.501.15
35. Managing stress	26.9	23.4	49.7	3.301.15
36. Showing concern for the holistic development of students.	13.1	25.1	61.7	3.701.06
37. Showing care and concern for students.	12.5	9.7	77.7	4.101.06

*Percentage of "no knowledge" and "a little knowledge"
**Percentage of "moderate knowledge"
***Percentage of "knowledgeable" and "highly knowledgeable"

Testing of Hypothesis

Ho_1: There is no statistically significant difference in the perceptions of male and female Tumu College of Education students towards the pedagogic knowledge mentors.

The results of a t-test study to determine whether there was any gender-based disparities in perception of mentors' pedagogical knowledge are shown in Table 3. In all six areas, there were no significant gender disparities in how mentors PK were perceived. From Table 3, the sig. value is greater than 0.05 for all the dimensions of the mentors' PK. This means that the null hypothesis of no statistically significant difference in the perceptions of male and female Tumu College of Education students towards their pedagogic knowledge mentors be accepted.

Table 3. Perceptions of Mentors' PK and T-test of differences in Gender

Dimension	Gender	N	Mean	SD	t	Sig.
Student Learning	Female	83	3.75	0.75	.62	.538
	Male	92	3.68	0.84		
Lesson Planning	Female	83	3.73	0.87	1.25	.212
	Male	92	3.57	0.91		
Instructional Support	Female	83	3.52	0.87	.15	.881
	Male	92	3.50	0.86		
Accommodating Diversity	Female	83	3.61	0.90	.70	.486
	Male	92	3.51	0.99		
Classroom management	Female	83	3.70	0.87	.05	.961
	Male	92	3.70	0.87		
Care and Concern	Female	83	3.65	0.84	.65	.516
	Male	92	3.57	0.85		

Ho_2: There is no statistically significant difference in the perceptions of Tumu College of Education students pursuing different specialisms towards the pedagogic knowledge of their mentors.

The results of a t-test analysis to determine whether there were any appreciable variations in mentors' pedagogical knowledge based on study programme are shown in Table 4. In all six aspects, there were no appreciable differences between study programme and mentors' perceived PK. The sig. value is greater than 0.05 for all the dimensions of mentors' PK. This means that the null hypothesis of no statistically significant difference in the perceptions of Tumu College of Education students pursuing different specialisms towards the pedagogic knowledge of their mentors be accepted.

Table 4. Perceptions of Mentors' PK and T-test of differences in programme specialism

Dimension	Specialism	N	Mean	SD	t	Sig.
Student Learning	Early Grade	60	3.71	0.72	-.05	.963
	Primary	115	3.71	0.84		
Lesson Planning	Early Grade	60	3.68	0.80	.40	.689
	Primary	115	3.63	0.95		
Instructional Support	Early Grade	60	3.50	0.84	-.06	.950
	Primary	115	3.51	0.88		
Accommodating Diversity	Early Grade	60	3.56	0.88	.04	.972
	Primary	115	3.56	0.98		
Classroom management	Early Grade	60	3.65	0.83	-.61	.542
	Primary	115	3.73	0.89		
Care and Concern	Early Grade	60	3.56	0.81	-.52	.601
	Primary	115	3.63	0.86		

Discussion of Results

The main research question sought to ascertain the perceptions student teachers hold about the pedagogic knowledge of their mentors. The study investigated the views of student teachers about the following dimensions of their mentors' PK: student learning, lesson planning, instructional support, accommodating diversity, classroom management, care and concern. The results showed that the student teachers thought their mentors had almost adequate PK understanding. To put it another way, the participants had favourable opinions of their mentors PK in general. This agrees with the findings of Guler-Nalbantoglu and Aksu (2021), where

mentors reported having competence in PK. The highest mean score was recorded for knowledge of "students learning" and "classroom management", whereas the lowest mean value was recorded in knowledge of "instructional support". This agrees with the findings of Ndebele and Legg-Jack (2022), who found that mentees indicated their mentors helped them acquire skills in classroom management, handling disruptive behaviour, and how to establish a good learning environment. Chien (2014) also established the fact that student teachers rated their mentors as competent in lesson planning. Findings of this study contradict the conclusion given by Azure (n.d) that the majority of student teachers perceived their mentors not to exhibit pedagogical knowledge and the contention of Guillier et al. (2017) that mentees regarded their mentors as having little pedagogical knowledge. These two studies were conducted using samples from pre-service science teachers in senior high schools in Ghana (Azure, n.d) and pre-service English teachers in Chile (Guillier et al., 2017). These are subject specific studies conducted in remote settings using mixed and qualitative designs, respectively. This could account for the differences.

Student teachers rating the mentors as knowledgeable in their PK could partly be attributed to the fact that reforms in teacher education that place emphasis on continuous professional development as a requirement for renewal of teachers' licences are compelling mentors to engage in refresher courses through professional learning communities and further studies. The new curriculum for the pre-tertiary level of education and the Pre-Tertiary Teacher Professional Development (PTTDM) require teachers to engage in professional development once a week. This is expected to help teachers share knowledge and skills as a community of professionals. Also, with the introduction of reforms in teacher education in the country, teachers are expected to hold Bachelor degrees as a minimum requirement for teaching. As a result, most mentors have either upgraded their academic qualifications or are studying to upgrade their skills. This is also probably resulting in enhancing the pedagogical skills of mentors, as reported by student teachers. On the contrary, the pre-service teachers perceived their mentors as less competent in effectively incorporating information and communication technology (ICT) in the classroom, managing stress, producing their own teaching materials, managing co-curricular activities, and managing individual students' learning. The perception of student teachers on the PK of mentors in relation to ICT could be attributed to the observation made by Obielodan et al. (2020) that teachers have low pedagogical knowledge in the utilisation of ICT. This contention sharply contradicts the report given by Mwinkaar (2018) that the failure of teachers to integrate ICT in their teaching do not necessarily reflect low

pedagogical knowledge. Large class sizes, a lack of ICT devices, and schools not connected to electricity, are some of the factors that account for teachers not being able to integrate ICT into their lessons. That notwithstanding, considering the fact that digital literacy is one of the six core skills identified by the National Council for Curriculum and Assessment (NACCA) that teachers should demonstrate, it is important to ensure that mentors exhibit high pedagogical knowledge in the integration of ICT in teaching. Paciente (2022) confirmed that ICT enhances the attainment of 21st century skills.

Teaching and learning materials play a primary role in consolidating learning among students, yet mentors were perceived to have little to moderate pedagogical knowledge in terms of their ability to produce their own teaching and learning materials. This partly agrees with the contention of Azure (n.d), who found that mentees rated science teachers' ability to help preservice teachers obtain equipment for teaching as uncertain, with a mean of 3.25 and a standard deviation of 1.24, which are similar to the findings of this study. Subsequently, Albakri et al. (2021) also affirmed that mentors showed a moderate level of pedagogical knowledge in their selection of teaching and learning resources. This study again found that student teachers rated their mentors' pedagogical knowledge in managing individual students' learning effectively" to be low. It confirms the findings of Carrosa et al. (2019) who found that some mentor teachers could not differentiate their teaching activities to take care of individual learners. This was attributed to large class size in the schools. The situation is not different in Ghana and for that matter in partner schools of Tumu College of Education. For instance, the Ministry of Education (2018) revealed that in Ghana the Pupil-Classroom Ratio (PCR) is 55:1 and 38:1 for Kindergarten and Primary respectively.

Findings of this study also revealed that respondents rated the PK of their mentors' low in managing stress and managing co-curricular activities. These are part of the indicators under the dimension of care and concern which is the second lowest rated dimension in mentors' PK from Table 1. This dimension involves the use of the affective domain of pedagogical knowledge which is often ignored by teachers. Teachers chose to give attention to more "technical" aspects of their teaching such as planning and assessment. This is argument is supported by the findings of Chong et al. (2008) who revealed that preservice teachers are less concerned about their affective pedagogical skills. This may account for mentors being rated by their mentees as low in those indicators. This calls for some attention to developing the affective domains of teachers to enable them manage stress and co-curricular activities.

The first hypotheses sought to test if a statistically significant difference exists between the perceptions of male and female student teachers of Tumu College of Education about their mentors PK. The study found no statistically significant difference between the perceptions of male and female final year student teachers of the College. This corroborates the findings of Kamarudin, et al (2021) and that of Dankwah et al. (2021).

The second hypothesis also sought to investigate if there was a statistically significant difference in the perceptions of Tumu College of Education students pursuing different specialisms towards the pedagogic knowledge of their mentors. Results from the study showed no statistically significant difference between student teachers offering Early Grade and Primary specialisms towards the PK of their mentors. This means that mentors in both Kindergarten and Primary classes exhibit same competence in PK in the perspective of student teachers as students offering the various specialisms in Tumu College of Education are placed in classes based on their areas of specialisations. Simsar and Dogan (2020) obtained similar results in a study that investigated mentors' mentoring practises from the views of pre-service early childhood teachers. The study revealed that mentors demonstrated pedagogical knowledge among other practises.

Conclusion and Recommendations

Mentoring through STS is an approach to help consolidate what student teachers learn in college. Mentors in partner schools are expected to help student teachers to acquire various professional knowledge, skills, values and attitudes outlined in the NTECF and the NTS. It is therefore expected that these mentors have the required knowledge and competencies to support the student teachers. It is important to ascertain whether these mentors possess these skills and values. Available literature (Choy et al., 2013) turn to measure perceptions beginning teachers hold about their own pedagogical knowledge and skills. It is evident that few studies sort to measure the perceptions of mentees about the pedagogical knowledge of mentors. Guerriero (2014), particularly lamented that teachers' pedagogic knowledge has not received the required attention, hence this study.

Generally, findings of the study revealed that mentees perceive their mentors to be knowledgeable in terms of all dimensions of pedagogic knowledge. This means that student teachers are likely to give attention to their mentors during the STS programme. Studies show that skills in pedagogy, ability to design assessment (Jafar et al., 2021); demonstration of best teaching, commitment to their professional development and peers (Arnold; Blank & Kershaw;

cited in Chien, 2014); and keeping professional standards (Hoxha, 2016), influenced novice teachers to emulate mentor teachers. That notwithstanding, the study has revealed that student teachers perceive their mentors to have little pedagogic knowledge in effectively incorporating information and communication technology (ICT) in the classroom, managing stress, producing their own teaching materials, managing co-curricular activities and managing individual students' learning effectively. The lowest indicator reported by student teachers is the effective incorporation of ICT in the classroom.

In terms of teacher certification, the study shows that mentors in partner schools of the Tumu College of Education are perceived to be adept at pedagogical knowledge, and are capable of serving as mentors for trainee teachers during their STS session. Therefore, trainee teachers could be said to be receiving the required pedagogical knowledge and skills that they are expected to acquire for Bachelor of Education certification.

Based on the findings of the study, it is recommended that the Ministry of Education and the Ghana Education Service should organise workshops on the integration of Information and Communication Technology (ICT) for in-service teachers to enable them improve on their knowledge and skills in the use of ICT devices. Since digital literacy is one of the core competencies teachers are expected to assist learners to develop, the NTECF should also consider a curriculum review to increase the number of ICT courses and credit ours that are in the NTECF framework.

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