# Science Education Students' Field Experiences during the Teaching Practice Exercise: A Note for Stakeholders

**[1]Olayanju, M. O, [2]Aluko, T. O., [3]Ajayi, O. A. &, [4]Saibu, S. O**

[1]Department of Integrated Science Education
[2]Department of Physics Education
Federal College of Education (Technical), Akoka, Lagos
[3]Department of Science and Technology Education,
Lagos State University, Ojo, Lagos
[4]Department of Integrated Science Education,
Lagos State University of Education, Otto-Ijanikin, Lagos
maryolayanju@gmail.com

## Abstract

*This study is phenomenological qualitative research that describes science education students' field experiences during teaching practice exercise. Critical case purposeful sampling technique was adopted to select six science education students from three institutions offering teacher education programmes in Lagos State. The selection criteria were premised on the students' willingness to share their experiences and that the students were either near completion of the teaching practice or had just finished teaching practice as at the time this study was conducted. An unstructured interview protocol was used to collect qualitative data. Memoing and audio recording of the interview sessions were made. An epoche of the researchers' opinions; and a pre-study survey was conducted to ensure the reliability of the data collected. Both physical and virtual means were used to interview the students (based on the students' choices). Four research questions were answered. After transcription, the data collected were presented in textural descriptions arranged in four themes. Data explication indicated that the students' perspectives on their supervisors were diverse; all the students except one gave credence to their supervisors for being meticulous in their supervision, and some of them were grateful to their supervisors for obliging them with a mentorship opportunity. A disconnect between higher institution science (HIS) and secondary school science (SSS) was identified by some of the students (as some of the student teachers had difficulty in simplifying HIS to suit the cognitive demands of their basic science students. To this end, this study suggests a clinical supervision approach pivoted on social cognitive theory, manageable workload for supervisors, and a verifiable feedback mechanism from students in order to achieve a better teaching practice exercise in STEM education which will consequently contribute positively to the future of the students and nation at large.*

**Key Words:** Clinical supervision, Higher Institution Science (HIS), Social cognitive theory, STEM, Secondary School Science (SSS) and Teaching Practice

## Introduction

Teaching Practice (TP) is considered a pivotal exercise in every teacher education institution in Nigeria. It is a period when education students are expected to bring to bear, the content knowledge and pedagogical knowledge they have acquired so far in the teacher education institution. It is

designed to help student teachers get acquainted and socialise with the cooperating school environment, and to get internship tutelage from cooperating teachers and institution supervisors. Kiggundu & Nbyimuli (2009) view teaching practice as a means to provide for the authentic context within which student teachers are exposed to experience the complexities and richness of the reality of being a teacher, it allows the student teacher an opportunity to establish whether the right career choice has been made or not. TP is an imperative to develop competencies in the student teacher [Aldabbus (2020); Elmabruk (2020)].

For some institutions, TP spans for three months, while some have theirs for six months. Whatever the duration is the science education student (SES); who is also addressed as student teacher in this study) is expected to be exposed to the teaching school environment (formal and informal activities). Formal activities such as: teaching and learning in the classroom, practical sessions in the laboratory, hands-on activities in the school garden and workshop. Informal activities include student teacher's interaction with his colleagues, school students, cooperating teachers and other members of staff. The student teacher is exposed to the culture of the cooperating school that he is deployed to; he is expected to function as a teacher should do. In doing this, he cannot function in isolation, as Bandura (1994) puts it that teachers operate collectively within an interactive social system rather than as isolates, Bandura (2004) postulated a theory popularly referred to as Social Cognitive Theory (SCT). SCT presents the influence of individual experiences, the action of others, and environmental factors on individual behaviours. The components of SCT are: self efficacy, behavioural capability, expectations, observational learning and reinforcement. Horsburgh & Ippolito (2018) explained that in SCT, students learn through modelling and observation; and that takes place in a social setting.

Principally, every student teacher is attached to a supervisor or two supervisors from his University/College; and to at least a cooperating teacher in the school that he is deployed to, for TP. The University/College supervisor is expected to visit the trainee from time to time depending on the duration of the teaching practice. The first visit is usually to familiarize the supervisor with the cooperating school environment, ensure the welfare of the student teacher in the cooperating school and observe the student teacher's disposition and classroom instruction; the supervisor may not necessarily score the student teacher at the first visit. The supervisor gives a constructive critique of the student teacher's performance in the class, comportment and the lesson plan among others. Sometimes, it may be a little encouragement from the supervisor that will spur a better performance

from the student teacher. The supervisors beyond evaluating the student are supposed to be mentors from whom the student teacher will glean wealth of experience. Any inadequacy in this mentor-mentee relationship will likely create a lacuna in the empowering field experience that the student teacher is expected to acquire (Fasanmi, 2023; Ezenwosu *et al*., 2025; Mazzuki, 2026).

In the same vein, the cooperating teachers are expected to avail the student teacher experiences as scaffolds that can enhance proficiencies in the student teacher. To achieve this, Bryan & Jodie (2014) suggested some co-teaching approaches which are:

- **One teaches / one observes:** In the beginning of the teaching practice, it is important for the collaborating teacher to model effective teaching strategies for the trainee. While the collaborating teacher is teaching, the trainee can observe effective teaching practices, while also taking note of students' responses.
- **One teaches/one assists**: One teacher teaches a group of students, while the other assists. This may include helping the teacher reach students who need extra support during the lesson. While the other teacher teaches, the other may be circulating and guiding students.
- **Parallel Teaching**: Both teachers are teaching the same content, but to different groups of students at the same time. This approach reduces the student to teacher ratio.
- **Station Teaching**: Both teachers are teaching at the same time but different concepts and todifferent groups.
- **Alternate Teaching**: One teacher is teaching a larger group while another is teaching smaller group.
- **Team Teaching**: Both teachers deliver instruction to the same group of students at the same time. The lesson is co-presented by both teachers.

Apart from the cooperating teacher that the student teacher is expected to interact with, he is expected to teach a subject within the circumference of his subject specialization. But the reality experienced by many science student teachers is that some of them are asked to teach a subject outside their subject specialization. Some other student teachers experience a disconnect between Higher Institution Science (HIS) and Secondary School Science (SSS). This study refers to HIS as the science taught in the University or College of Education SSS and the science that student teacher is expected to teach in the junior secondary school or primary school. NUC (2023) expects

that Integrated science as a course of study at Bachelors degree should prepare students to teach science at the lower, middle and upper level of basic education, be able to apply science to solve problems in daily life, possess sound in industrial applications of Integrated science, and get prepared for further studies. Unfortunately, as often observed, some student teachers may have good subject mastery but are weak in pedagogical proficiency; hence an effective teaching practice is needful, especially in producing impactful teachers in Science Technology Engineering and Mathematics (STEM). STEM education was an initiative birthed from MET (Science Mathematics Engineering and Technology. It was targeted at bridging the huge technological development gaps between the global north and the global south. It was also initiated to provide and foster a 21st century education loaded with skills required in the job market [Fomunyam (2022); Aina (2022); Ogundele *et al*., (2022). While appreciating the positive roles that STEM education has played in Nigeria's development, Aina (2022) and identified some challenges faced by STEM as lack of creativity, low research output, inadequate funding and poor quality teachers. Likewise, Adesina & Obokoh (2026) in a comparative study found that neither STEM education in Nigeria and South Africa have the skills needed for practical problem solving. It is therefore urgent to build science education students who will be a major part of the STEM workforce because having a STEM education that can provide needed manpower for the evolving 21st century industrial revolution cannot be compromised.

With the expectations of the United Nations to substantially increase the supply of qualified teachers as embedded in the 2030 Sustainable Development Goals (SDGs); great attention should be given to research on TP especially in grooming student teachers meant for STEM work force (Idris et. al, 2026). In various climes, rigorous research is ongoing on how to improve teaching practice exercise. For instance, Woodrow Wilson Academy of Teaching and Learning in the United States is Working assiduously on identifying problems in STEM teacher training and proffering solutions (Hatch, 2018). The same goes for Libya, where Aldabbus (2020) researched on challenges encountered by teaching practice students in practising teaching. Over here in Nigeria, research is also ongoing; for example, Nja & Samson (2019), in their case study research, posit that there is a decline in the quality of teaching practice being offered in the Universities now; and that it appears that TP as being offered in the Universities is considered inadequate.

With current research trends on making STEM education more functional and empowering enough for equipping the budding future, it becomes imperative to have more studies on teaching practice

exercise as a composite of STEM education, especially at a critical time like this when there is a clarion call for an education that builds individuals and a nation.

With the global demand to produce efficiently empowered STEM teachers for the economy, there is a need to give attention to all composites of teacher education. Considering TP as a major composite of teacher education, science education students' field experiences in TP exercise should be of utmost concern to all stakeholders with the view of working towards improvement of any identified lacuna. As the popular saying goes that "he who wears the shoes knows where it pains most"; this study tolls along the focus of having science student teachers describe their in-depth experiences of the T.P. to avail researchers the empirical data of what is currently happening in the TP field; and consequently provide an insight on what and where to improve. The experiences of these students could be processed by lecturers, school administrators, cooperating schools and cooperating teachers towards improvement of the TP exercise where necessary.

**Research Questions**

This study aims at answering four research questions; these are:

1. How do the student teachers perceive cooperating teachers' attitude towards teaching practice?
2. What are the student teachers' descriptions of the teaching practice supervisors' attitude towards teaching practice?
3. What are the student teachers' opinions about the link between Higher Institution Science and Secondary School Science?
4. What contributions has teaching practice exercise made to the student teachers?

**Methodology**

This study adopted a psychological phenomenology qualitative research that centers on exploring science education students' field experiences of the teaching practice exercise. In congruence with Creswell (2013), phenomenology qualitative research was adopted as research design with the aim of helping the researchers describe real-life experiences of science student teachers in their different teaching practice fields; thereby, accentuating a theoretical framework that can help (Palfy *et al.*, 2020) to improve TP exercise.

The sample was made up of six science education undergraduates students (otherwise referred to as science student teachers in this study). Psychological critical case purposeful sampling technique was used to select the study sample. The researchers considered critical case purposeful sampling technique appropriate because the nature of a phenomenological research design requires having a sample with actual experience of the phenomenon under investigation; and in this study, students' teaching practice field experiences are described. Two students were selected each from departments of science and technology education or School of Science Education from three institutions offering teacher education programmes at Bachelor's degree in Lagos state. Three criteria were considered for the selection of these student teachers: willingness to participate in this study without any coercion, student teachers serving in secondary schools; and, student teachers who were near completion of the teaching practice exercise or recently partook in TP as at the period that this study was conducted.

An unstructured interview protocol was used to collect qualitative data, after a pre-study survey was conducted using a structured questionnaire. The interview protocol had four major questions which were premised on the research questions. Three of the major questions had sub-questions that assisted the researchers in probing into the student teachers' experiences under investigation. Memoing and audio recording of the in-depth interview sessions were made using Android phones. Both physical and virtual interactions were used to have an audience with the science student teachers**.** The interview was conducted individually to allow the student teachers to have the privacy needed to share their TP field experiences. The consent of the student teachers was sought, and the interview session was scheduled with the convenience of the student teachers in mind. Before the interview, the researchers reassured the students that their personal identities, such as names and teacher education institutions, would be treated with utmost confidentiality; this was important to allay the student teachers' fear in freely describing their TP field experiences, especially where the experiences were negative.

The researchers re-affirmed the identity of the students to ensure that the students were actually science education students at bachelor's degree level in a teacher education institution within Lagos State, and that these students either were near completion of the TP exercise or recently finished TP exercise. Since this study is phenomenological research, this re-affirmation was necessary to validate data collected. In addition to this, three procedures were adopted to ensure validation of the

data collected. These are: thick description of the qualitative data collected, member checking and bracketing of the researchers' personal experiences (Creswell, 2013). The interview protocol was critiqued among the four researchers who are also science education experts, this was to check for content and construct validity of the instrument and that the questions were probing enough to generate in-depth interview.

**Epoche of the Researchers' personal experiences**

An epoche of the researchers' personal experiences was done, since the researchers were once science education students, hence, they all went through teaching practice in their various teacher education institutions where they graduated from. Their personal experiences are summarily presented below.

**Researcher 1**

I went through TP at two different stages: as a Nigeria Certificate in Education (NCE) student and Bachelor's degree student. It was quite interesting, educative, adventurous and exploratory for me. I had two supervisors at both NCE and Bachelors degree. In addition, I had three external supervisors at the NCE level. I cherish the corrections and commendations of all these supervisors, so much that the lesson plans with their comments are still in my library since twenty-three and eighteen years ago respectively. They were thorough with their supervision, except for one of them at the Bachelor's degree level who comparatively speaking was not as detailed as others. My cooperating teachers at both levels played significant roles in encouraging me to "remain" in the teaching profession. I still have the photograph that we took together, so lovely they were. The work was pleasurably much; I didn't feel the burden of the work so much because I was intrigued by the hard work and glamour of the cooperating teachers themselves!

**Researcher 2**

I experienced teaching practice at post graduate level during my post graduate diploma in education. Favoured by age and maturity, it was not very difficult to transform all the instructions on lessons on pedagogy and content to action in the classroom. My supervisors (both of them) were not too thorough on the exercise as expected, though I personally wondered if it was connected to my maturity already but the quest to get it right was achieved by mentoring. I got attached to some senior colleagues who had an in depth knowledge of teaching practice exercise (content and professionalism), I observed them, learned from them and practiced it. I am forever grateful to them because they drilled me, I complied and earned the fulfilment.;

**Researcher 3**

I went through TP during my Bachelor's degree. I was supervised by three supervisors; two internal supervisors and one external supervisor. The supervisors were thorough and diligent during the supervision, their comments and corrections were detailed and educative. Comments were written in my lesson note for me to identify my mistakes and make necessary adjustments. I enjoyed my TP because of the pleasant attitude of my cooperating teacher who guided me and also explained difficult topics to me before going to teach the students throughout the period of TP.

**Data Explicitation**

Literature shows that there is no unanimous convention on data analysis or data explication among various phenomenological researches; howbeit, this study adopted Hycner (1999)'s method of data explicitation with some modification in line with Creswell (2013); Groenewald (2004); Moustakas (1994) and King (1994). In explicating the qualitative data collected, this study therefore: bracketed the researchers' opinion as much as possible, delineate units of meanings, cluster units of meanings to form themes, summarise each interview (modifying where necessary). The formulated meanings were clustered into themes allowing the emergence of themes common to all participants' transcript (Olayanju, Olayanju and Aluko, 2020).

**Research question 1: How do the students perceive cooperating teachers' attitude towards teaching practice?**

From the six transcripts, significant statements on student teachers' perception of cooperating teacher's attitude towards teaching practice were extracted. Table 1 includes students' significant statements with their formulated meanings. The cooperating teachers' attitudes were collectively grouped into two classes - positive and negative. Majority of the student teachers described their cooperating teachers' attitude as positive (being friendly, good, supportive, approachable, lenient, and instructive) but one, reported a negative attitude from the cooperating teacher during the teaching practice exercise (not welcoming, harsh with words and not homely in approach).

**Table 1:**
**Significant statements of science student teachers about the cooperating teachers' attitude and formulated meanings for theme 1**

| Significant statements | Formulated meanings |
|---|---|
| "I learnt practical concepts of what I only knew theoretically before TP from my cooperating teacher. | Science student-teacher identifies positive attitude of |

| | |
|---|---|
| She impacted me positively as her crave for excellence in teaching encourages me to do the same". | cooperating teacheras being practically impactful. |
| "My cooperating teacher was not the type that would leave work for the student teacher. She still did her work as she ought to and assigned duties like marking and scoring to me at first to observe me". | Science student teacher identifies positive attitude of cooperating teacheras beingdiligence andnot overbearing. |
| "Watch me as I do it' was my TP cooperating teacher's anthem; before assigning any task to me". | The TP cooperating employed a coaching strategy in training the student teacher pedagogical skills. |
| "She taught me before sending me to class every time she wanted me to be the one to teach first, though she would still go with me". | Cooperating teacher gave mentorship and tutelage to the student teacher. |
| "We communicated well and from my observation of her, she has good relationship with her colleagues". | Science student teacher appreciates the observed approachable and good interpersonal relationship cooperating teacher has with colleagues. |
| My cooperating teacher gave me a frosty comment "You should be grateful we are allowing you to use our school for teaching practice". | Student teacher describes cooperating teacher's attitude as frosty, use of harsh words and overloading with work. |

Sequel to the cooperating teachers' attitude towards the student teachers, the researchers identified a "cause and effect" reaction among the student teachers. Hence, Theme 2 emerged in answering research question 1. Theme 2 is therefore presented below.

**Theme 2: Perceived influence of cooperating teacher's attitude on the Student teachers**

Many of the student teachers felt that the cooperating teachers' attitude had positive influence on them, this made them love teaching as a profession; and made TP exercise a worthwhile for them. However, one of the student teachers had a divergent narration. In this cluster, the student teachers' explicit statements and views explained that cooperating teachers were a major determinant of positive teaching practice experience. The significant statements and formulated meaning are presented in table 2 below.

**Table 2:**
**Significant statements of science education students and formulated meanings for theme 2**

| Significant statements | Formulated meanings |
|---|---|
| One of the student teachers lamented "Maybe I should have just changed my cooperating school".<br><br>"I was expecting something welcoming".<br>I heard from my friends how they were treated well. | A language of discouragement from cooperating teacher.<br><br>Student teacher's expectation of the cooperating teacher was dashed. |
| Furthermore, one of the student teachers said that "I needed a guide, a coach" but that was a TP thirst that was not quenched. | A statement of regret and dissatisfaction.<br><br>It is unfortunate to note that, although, one of the cooperating teachers who was identified by the student teachers as having a welcoming attitude was not there for giving the student teacher the needed tutelage. |
| "My communication and relationship skills were affected positively. It further strengthened my love for excellence and competence in teaching". | Cooperating teacher gave sense of satisfaction, belonging and motivation for excellence in student teacher; while developing competence in him. |
| "I am moved to also mentor my students as I teach them; to teach and guide the student teachers that would be coming under me when I become a teacher rather than using them". | Student teacher was positively influenced by cooperating teacher to have a mentor-mentee relationship with her students in the future. |
| "I have learned diligence and punctuality to duty, also faithfulness to duty". | Student teacher learnt good work culture in cooperating teacher. |

**Research question 2: What are the student teachers' descriptions of the Institution supervisors towards teaching practice?**

In answering question 2; significant statements on the sampled student teachers' descriptions of the Institution supervisors towards teaching practice were extracted from the six transcripts. These descriptions are summarized in Table 3.

**Theme 3: Higher Institution-based Supervisors' Interaction with Student teachers**

In this theme, all the student teachers indicated that they were attached to at least one institution supervisor during TP. However, all the student teachers disclosed the number of assigned

institution supervisors who visited them as two each except for one of them who was supervised by only one institution supervisor. The student teachers appreciate the deployment of a pair of institution supervisors for them during TP; they commended it as being effective, functional and complementary. Unfortunately, one of the student teachers' institution supervisors did not come to field to supervise him at all.

In addition, the student teachers freely expressed their experiences interacting with their various higher institution-based supervisors during their visitation. Majority of the student teachers described their interactions with their various higher institution supervisors with respect to the character and professionalism demonstrated by the higher institution supervisors. The higher institution-based supervisors' personalities and attitude were described as follows: amazing, welcoming, friendly, and good among others. Few of the student teacher gave a variation to these descriptions especially in supervisors' display of professionalism. Table 3 has the significant statements by the student teachers and their formulated meanings for theme 3.

**Table 3:**
**Significant statements on Higher Institution-based Supervisors' Interaction with Student Teachers and formulated meanings for theme 3**

| Significant Statements | Formulated Meanings |
|---|---|
| "My supervisor spent very little time with us because we (the student teachers) were many". | Too many student teachers were assigned to a single supervisor. |
| "My supervisor was welcoming, but I didn't have a field experience per se this time with my supervisor like when I did during my first TP". | No field experience professionalism was displayed by the current supervisor. |
| "My supervisor went to class with us and corrected every one of us. A good attention was paid to our lesson delivery by my supervisor". | Professionalism was displayed by the supervisor. |
| "My supervisor demonstrated a good understanding of what he was supposed to do; he took us through how to write a good lesson plan".<br>"He corrected our dressing". | Professionalism was demonstrated by the supervisor.<br><br>Another important aspect of teaching practice touched. |
| "My supervisor did not go to class; he only corrected our lesson plans". | Unprofessional disposition which is contrary to the ethics of teaching practice. |

**Research question 3:** What are the science education students' opinions about the link between Higher Institution Science and Secondary School Science?

All the six student teachers expressed different perceptions about the perceived link between the HIS i.e. the science they taught in higher institution and SSS i.e. the science that they were asked to teach in the secondary schools. Their significant statements are organised into two themes (Theme 4 and 5) with Tables 4 and 5 respectively.

**Theme 4: Link between Higher Institution Science knowledge (HIS) and Secondary School Science (SSS) content.**

Two themes (4 and 5) were identified as related to question 3. In Theme 4, the student teachers had divergent views on the link between HIS and SSS; some student teachers said that they could not identify a link between HIS and SSS while others identified link between HIS and SSS. These varying views are expressed in Table 4 below.

**Table 4:**
**Significant statements of science student teachers and formulated meanings for theme 4**

| Significant statements | Formulated meanings |
|---|---|
| "Although Higher Institution Science is a higher version of the Secondary School Science; although it is more complex than what we met on the field, a link exists between both". | Student teacher identifies a link between Higher Institution Science and Secondary School Science. |
| "There is no link when it comes to the practical aspect of Secondary School Science; in fact, our lecturers didn't teach practical on some topics, and I have challenges using the laboratory too". | Student teacher couldn't identify familiarity with the practical aspect of Basic School Science. |
| "I couldn't identify a link between Higher Institution Science and Secondary School Science at all; the experience was very difficult for me". | Student teacher expresses struggles on teaching Secondary School Science. |
| "Teaching Secondary School Science was hard for me; my lessons lacked classroom control". | Student teacher feels he does not have mastery of subject content in basic school science. |
| "I had to use my past experiences of 'O' level science for my Secondary School Science lesson delivery". | Student teacher was not able to link Higher Institution Science and Secondary School Science but resolved to use previous O' level to teach. |

In addition to theme 4 above, some of the student teachers narrated their experiences on teaching subjects that were not based on their course of study at the higher institution. These experiences are presented as challenges in Theme 5.

**Theme 5: Challenges experienced with linking course of study and teaching practice subject content**

Some of the student teachers explained that in their cooperating schools, they were given subjects to teach outside their area of specialization. Description of challenges encountered by all the student teachers in trying to link higher institution content knowledge and teaching subject content are expressed in Table 5 below.

**Table 5:**
**Significant statements of student teachers and formulated meanings for theme 8**

| Significant statements | Formulated meanings |
|---|---|
| "The subjects I taught in my teaching practice were different from the course I am studying". | The student teachers taught a secondary subject outside their area of specialization. |
| "My course of study is centered on senior secondary school subjects, but in my TP school, I was asked to teach at the junior secondary school". | The student teachers taught a secondary subject outside her area of specialization. |
| "We were too many student teachers in my TP school at the same period; hence I had to teach a subject outside my area of specialization". | The student teachers in some TP schools were many at the same time. |
| "Conducting secondary school biology practical/experiments was extremely difficult for me". | Some of the student teachers who were biology education students had difficulty of competence in conducting practical classes in their TP schools. |
| "I had poor elementary foundation in science; and this poor foundation was revealed when I was handling the students in my TP school". | A poor foundation becomes evident in student teachers' lesson delivery in the Teaching Practice school. |

**Research question 4: What contributions has teaching practice made to the Student teachers?**
To answer question 4, student teachers' discussions that were relevant to benefits of teaching were harmonised and presented in Theme 6.

**Theme 6: Benefits from teaching practice**

With all the hurdles experienced during TP, there were still lessons picked up by the student teachers. Expressions of student teachers on perceived benefits from teaching practice are indicated in Table 6.

**Table 6:**
**Significant statements of science education students and formulated meanings for theme 9**

| Significant statements | Formulated meanings |
|---|---|
| "Teaching Practice gave me the opportunity to discover my strengths and weaknesses in the art of teaching". | Self-discovery, which is a major purpose of teaching practice, is accomplished. |
| "I experienced development of my teaching potentials in TP, and I feel that the period for TP should be extended". | The Student teachers identified and used their TP period for self-development. |
| "More than ever, I discovered my teaching abilities, and I think the teaching internship was worth it". | The teaching internship is justified. |
| "TP exposed me to a holistic process of teaching". | Content and pedagogy knowledge married. |
| "For me, it was an expensive opportunity to impart the younger students". | Viewing things from the teacher angle. |
| "TP gave me the privilege of learning to cope with superiors". | Subordination, a great lesson for life was learnt. |

**Discussion**

This study examined teaching practice field experiences of science education students. An array of experiences was presented in themes; in all, six themes were presented. Majority of the student teachers described their cooperating teachers' attitude as being positive while the minority perceived the cooperating teachers' attitude as negative. Of the Student teachers who described their cooperating teachers as being friendly, accommodating and willing to guide them; one of them described her cooperating teacher as being dutiful; without leaving major work undone because "a student teacher is around", in fact, the SES applauded the cooperating teacher's style of What more could such a SES want from the cooperating teacher? Another side of the coin is the SES who lamented that his cooperating teacher felt that "student teachers should be used"; and should be grateful that he was deployed to that cooperating school for TP, what a world?

In the same vein, each SES described their various experiences with their higher institution supervisor. Majority of the SES threw accolades at the comportment of their supervisors. Some of

them explained that their supervisors might have done better if they were manageable number of student teachers assigned to the supervisor; unfortunately the supervisors were heavily loaded with student teachers to be supervised and hence, effective attention was not given to the student teachers. This is not far from the findings of Aldabbus (2020) who identified little guidance and support from some supervisors of final year students from the faculty of education, Tripoli University. One of the student teachers expressed disappointment at the supervisor who supervised the SES in the office without showing up in the cooperating school. The student teacher says she desired to be a lecturer in the nearest future but didn't see the interaction with the institution-based supervisor as being empowering as it should have been.

There were diverse experiences described by the STUDENT TEACHERS with respect to the workload. Some say their workload was manageable while others said that they experienced a heavy workload. For some, the subjects assigned for them to teach were entirely outside the circumference of their specialisation. Many of the Student teachers expressed their feelings about the difficulty they experienced teaching secondary school science. Perhaps, the Higher Institution Science may be high, but an appropriate exposure of the Student teachers to Secondary School Science should be included to the training of the SES before deploying them to the teaching practice field. This could be achieved through deliberate taking science education students through recognized textbooks used in secondary schools. In the same vein, classes of methods of teaching science should broadly practical enough to help students identify the link between Higher Institution science and Secondary School Science.

All the experiences described above for both cooperating teachers and institution-based supervisors beckon on all stakeholders to handle teaching practice as an exercise that requires adequate attention that will provide student teachers a platform for social interactions where student teachers are exposed to the nitty-gritty of workplace interpersonal relationships in the school setting. Hence, every second should be considered as investments in the immediate future STEM teachers. Just as Social Cognitive Theory puts it that "the influence of individual experiences, the action of others, and environmental factors have great impact on people behaviours" (Bandura, 1997). Taking into cognisance that teaching practice should help develop student teachers' pedagogical skill while also improving his self efficacy and behavioural capability in the teaching field.

To achieve this, teaching practice should be taken to the next level of the desired professionalism which requires exploring teaching practice through the lens of clinical supervision. The metaphoric

adaptation of clinical supervision is premised on the observational learning of Social Cognitive Theory (SCT) as postulated by Bandura (1997). For instance, usually, in the clinical phase of the medical school, medical students are exposed to clinical supervision where students are exposed to "a formal, educational evaluative collaborative process where a more experienced practitioner provides guidance, support, and feedback to a supervisee". In the same vein, Falender & Shafranske (2021) identifies clinical supervision as a professional cornerstone for training in the field of psychology. Taking teaching practice to the next level of the desired professionalism requires exploring teaching practice through the lens of clinical supervision. Adapting it to education, Lahri & Ouanjli (2025) argue that clinical supervision should give attention to the enhancement of quality instruction and supports teachers' professional development, rather than identifying faults or issuing criticism. This also aligns with the advocacy of Adegboye (2026), that cooperating schools should improve on their attitude towards making TP a "worthwhile" for Student teachers.

**Disclaimer**

All the opinions and descriptions of the science students are simply theirs alone without any agreement or disagreement from the researchers. Hence, their opinions were used for research purpose alone, to take a glean from, to all stakeholders.

**Essentials of the Study**

With reference to general practice in phenomenological studies (Moustakas (1994), this section presents a brief of the whole study. Experiences shared by STUDENT TEACHERS point to the need to view TP with the lens of a Social Cognitive Theory (SCT). (Bandura, 2004), where TP period will be valued by all stakeholders as a moulding period that may never repeat itself again. Bearing in mind that STEM teachers are highly pivotal in the technological development of any nation, no junction of their training should handled with a seemingly laissez-faire attitude from any angle. Also bearing in mind that in TP influence of individual experiences, the action of others, and environmental factors are affect individual behaviours. Therefore, a clinical supervision which takes an analogy from senior medical doctors' supervision and training of medical students; might be an imperative in achievinga TP that will produce more empowered STEM teachers.

**Recommendations**

More orientation should be given to student teachers on determination to make the best out of TP exercise against all odds; but could report cases of unbearable situations at teaching practice schools.

1. Student teachers should be encouraged to be worthy ambassadors of their institutions.
2. Higher institutions representatives should occasionally visit cooperating schools with the target of promoting more cordiality; and all negative cases reported should be thoroughly investigated as swiftly as possible.
3. University/College supervisors could employ clinical supervision approach in supervising their student teachers.
4. A viable and prompt feed-back mechanism from the students (independent of supervisors or cooperating school) could be encouraged to keep University/College abreast of happenings on the TP field.
5. Science education lecturers should try as much as possible to relate Higher Institution Science to Secondary School Science; for instance, a semester course that can be designed that will expose student teachers to good Secondary School Science textbooks (including the content, teaching resources and method of teaching the respective SSS.
6. Excess workload that could jeopardise supervisors' effectiveness in TP should be reduced.
7. Research should be conducted on approaches that can enhance the effectiveness of teaching practice.

**Conclusion**

This study investigated the teaching practice field experiences of six science education students. Their experiences were presented in textural descriptions arranged in nine themes. Tables illustrating significant statements of the students' teachers and the corresponding derived meanings were included in the data explication section. With some recommendations made, this study submits that approaching TP from the angle of clinical supervision which is premised on social cognitive theory might be contributory to producing the needed STEM teachers for nation building.

**References**

Adegboye, S. O. (2026). Concrescence: Evaluating the Problems of Teaching Practice Exercise: Towards Improved Quality Delivery in Teacher Education in Nigeria. Journal of Multi-Disciplinary Research 3 (2), 12 -19.

Adesina, O. S., & Obokoh, L. O. (2026). STEM education leadership and industry partnerships: Bridging the gap between educational institutions and industry. *STEM Education*, *6* (2), 258-283. DOI: 10.3934/steme.2026011.

Aina, J. K. (2022). STEM Education in Nigeria: Development and Challenges. *Current Research in Language and Education 3, 55-60, BP International*. https;//researchgate.net.

Aldabbus, S. (2020); Challenges encountered by student teachers in practising teaching. *British Journal of Education 8 (7), 1-8.* https://www.eajournals.org

Australian Clinical Supervision Association (2015). Definitions of Clinical Supervision. ACSA, Brisbane. https://creativecommons.org/licenses/by-nc-nd/4.0.

Bader, B. & Barma, S. (2013). How one science teacher redefines a science teaching practice around a theme: A case study in the context of educational reform in Québec. *International Journal of Environmental and Science Education 8 (1), 131 - 161*. http.www.ijese.com.

Bandura, A. (1997). Self-efficacy: The exercise of control. New York: Freeman.

Bandura, A. (2004). Health Promotion by Social Cognitive Means. *Health Education and Behaviour 31 (2), 143 -164.*

Bryan, Z. & Nicholis, J. (2014). Internship Student Teaching handbook; A guide for and Clinical practice. www.education.ucf.edu//clinicalesp.

Creswell, J. W. (2013). Qualitative Inquiry and Research Design. Choosing Among the Five Approaches. SAGE Publications, Inc., Los Angeles.

Elmabruk,, R. (2020). Judging the Judges: Examining Supervisors Assessment of Unobservable Skills in Developed EFL Teaching practice Model. *European Journal of Education Studies 7 (1).* https://oapub.org.

Ezenwosu, N. E. Anyanwu, A. N. & Okeke, N. U. (2025). Teaching Practice Experience (TPE): A Feedback From Pre-Service Teachers of Nnamdi Azikiwe University, Awka. https://unilaws.org/unilaws/article/view/92.

Falender, C. A. & Shafranske, E. P. (2021). Clinical Supervision: A Competency-Based Approach (2nd Ed.). https://doi.org/10.1037/0000243-001

Fasanmi, S. A. (2023). Analysing the Level of Professionalism in the Teaching Practice Exercise for Pre-service Teachers in Nigeria. *E-Journal of Humanities, Arts and Social Sciences (EHASS) 4 (12), (186-194).* DOI: https://doi.org/10.38159/ehass.202341216.

Federal Republic of Nigeria (2020). Nigeria Certificate in Education Minimum Standard for Sciences. National Commission for Colleges of Education, Abuja.

Fomunyam, K. G. (2022). Teaching STEM Education in Nigeria: Challenges and Recommendations. *International Journal of Mechanical Engineering and Technology 10 (12), 85 -93*. https://www.academia.edu.

Groenewald, T. (2004). A Phenomenological Research Design Illustrated. Sage Publications Inc. https://doi.org/10.1177/160940690400300104.

Hatch, J (2018). Building better Science Teachers. *Nature 562 (2018), 20-24*, Springer Nature Limited. www.nature.com.

Horsburgh, J. & Ippolito, K. (2018). A Skill to be worked at: Using Social Learning Theory to Explore the Process of Learning from Role Modeling in Clinical Settings. *Medical Education* 18 (1), 1-8. https;//researchgate.net.

Hycner, R. H. (1999). Some guidelines for the phenomenological analysis of interview data. In Groenewald, T. (2004). A Phenomenological Research Design Illustrated. Sage Publications Inc.https://doi.org/10.1177/160940690400300104.

Idris, U. S. B., Musa, H., Mohammed, U. S. K., & Abbas, L. (2026). Qualitative Study on Teachers' Anxiety and Burnout: A Panacea for Qualitative STEM Education Objectives in Nigeria. *Federal University Gusau Faculty of Education Journal, 6* (1), 118-122. https://doi.org/10.64348/zije.2026255.

Kiggundu, E. & Nayimuli, S. (2009). Teaching practice: a make or break phase for student teachers. *South African Journal of Education* 29: 345 – 358.

King, N. (1994). The Qualitative Research Interview in C. Cassell& G. Symon (Eds., Qualitative Methods in Organizational Research. A Practical Guide, 14-36. Sage Publications Inc.

Lahri, M. & Ouanjli, H. (2025). Clinical Supervision in Education: A Formative Framework for Enhancing Instruction and Professional Development. *International Journal of Linguistics, Literature and Translation.* 8:136-141. 10.32996/ijllt.2025.8.11.14.

Mazzuki, B. D. (2026). Preparing teachers for inclusive education: Pre-service teachers' knowledge, perceptions and experiences of inclusive pedagogy from teaching practice. *Center for Educational Policy Studies Journal*, *16* (2), 171-192. https://doi.org/10.26529/cepsj.1807.

National University Commission (2023). Core Curriculum Minimum Academic Standard for the Nigerian Education System.

Nja, C. O. & Sampson, R. S. (2019). Teaching Practice Experiences of Science Student Teachers and their effectiveness (A Case study of the department of Science Education Faculty of Education, University of Calabar. Researchgate.net.

Ogundele, A. T., Arowolo, J. G., & Olaringbe, G. O. (2022). Skills Acquisition in Science, Technology, Engineering and Mathematics (STEM) Education and Graduates Profitability in Kwara State. International Journal of Educational Policy Research and Review 9 (2), 41 - 47. https://journalissues.org.

Olayanju, T. A., Olayanju, M. O. & Aluko, T. O. (2021). Parental Views & Expectations of the Basic Science and Technology Curriculum: A need for its Review? *Journal of Education and Leadership Development, 13 (1), 61 – 83.*

Oyedeji, A. A. & Adebowale, O. (2021). The Place of Teaching Practice in Nigerian Universities. *International Journal of Advanced Academic Research* DOI:10.46654/ij.24889849.a61251

Palfy, K., McFeetors, P. J., & McGarvey, L. M. (2020). Mathematics curriculum change: Identifying parental expectations. *Journal of Research in Science, Mathematics and Technology Education, 3 (2), 51-72*. doi: 10.31756/jrsmte.322.

United Nations (2015). Transforming our world: The 2030 Agenda for Sustainable Development. sustainabledevelopment.un.org.