

SCIENCE TEACHERS' PERCEIVED BENEFITS OF THE TEACHING PRACTICE EXERCISE IN NASARAWA STATE

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Abstract

The study investigated the usefulness of the teaching practice exercise to science teachers in Nasarawa State. The sample consisted of 515 (291 pre-service and 224 in-service) secondary school science teachers who responded to the instrument: an unstructured questionnaire tagged Teachers' Perceived Usefulness of the Teaching Practice Questionnaire (TPUTPQ), used for data collection. Three research questions guided the study. The data collected were analysed using graphical presentations. The study revealed that Biology, Chemistry, Physics and Basic Science teachers found the following beneficial: classroom management, development of self-confidence, use of instructional materials, how to prepare and deliver lessons using different methods of teaching. The study also revealed that once teachers are employed, they may be assigned to teach any subject other than the one they specialised in. Physics teachers reported the least benefits from the teaching practice exercise while biology teachers seem to be the most versatile of all the science teachers. It was recommended that teacher trainers should take note and remedy missing areas of emphasis needed in training effective 21st century teachers such as use of technology, project and inquiry methods of teaching, assessment procedures, and so on. Positive ways should also be devised to address the disturbing issue of specialized training versus general training of science teachers. School proprietors should use their teachers more appropriately.

Keywords: Science teachers, teaching practice, Biology, Chemistry, Physics, Basic Science.

Introduction

Classroom teachers are professionals trained to communicate knowledge and skills to learners following a prescribed curriculum. One critical part of their training is the teaching practice exercise during which they are helped to connect theories of teaching they have learnt into practice in real classrooms with real people. The teacher trainers would have taught the teachers-to-be some foundational courses including educational psychology, philosophy, administration, teaching methods, use of technology and so on. Reported studies by Gyuse (1988), Abah and Odoh (2006), Omote so, and Samudara (2011), Aglazor (2017), Goodwin (2018) and Dutable (2019) re-

veal that the benefits expected from this part of teacher training may not be achieved for various reasons. If we want to improve how we train teachers, we must continue to follow up how both pre-service and in-service teachers perceive the exercise and what benefits they derive from it.

Practice makes perfect is a commonly believed proverb and this idea is behind the concept of ensuring that teacher training includes sending teacher trainees for teaching practice to put their training theory into practice. In reality, however, only good practice makes perfect, reiterated Hendricks, (1987). If you keep practising the same wrong thing a mil-

lion times, it will certainly not make perfect. Therefore, how teaching practice is carried out could greatly influence the benefits, long term that teachers derive from it. During the teaching practice exercise, student teachers are supposed to be observed by more experienced class teachers and the supervisors from the training institution. The student teachers are expected to learn the rudiments of how to function well in a school environment by teaching, observing more experienced teachers and taking part in school activities such as debates, sports, staff meetings, and so on. Consequently, this exercise should never be haphazardly carried out or treated carelessly. However, studies by Gyuse (2006); Childs and McNicholl (2007) and Kiggundu and Nayimuli (2009) suggest that what happens in practice may be far from that.

What is Teaching Practice?

It is no longer a debate about whether the standard of quality education today requires more rigorous training than before. This is because modern society demands high quality teaching and learning from teachers which means that they have to possess a greater deal of knowledge, teaching and assessment skills, and new proficiency to meet learners' needs. When these are in place, studies show that students achieve better grades and display more interest in learning (Stronge, Ward, Turker & Hindman, 2008; Omoteso & Samudara, 2011; Stronge, Ward & Grant, 2011). It is during teaching practice that teachers get their taste for what quality of teachers they aspire to become.

The teaching practice as used in education, is the culminating point where the relationship among the three major players: University supervisor, host teacher, and aspiring teacher interface to determine the quality of experience the aspiring teaching will take away. It becomes the bedrock on which the aspiring teacher once certified and employed builds his/her professional identity (Aglazor, 2017). Teaching practice is an integral component of teacher training. It grants student teachers

experience in the actual teaching and learning environment. Teaching practice is an important component of becoming a teacher. It grants student teachers experience in the actual teaching and learning environment (Marais and Meier, 2004; Mizzi, (2013). During teaching practice, a student teacher is given the opportunity to try the art of teaching before actually getting into the real world of the teaching profession. During this period, most programmes focus on: instructional planning, instructional technology, micro-teaching mentoring (model teaching), assessment procedures, feedback, teaching methods, and posting of students to schools where they can practice their major courses of study.

The length of time assigned to the teaching practice period also matters. Different teacher training institutions have different arrangements for this and include teaching practice in their training package to be preceded by courses in teaching methods and microteaching. Some institutions send their students out on teaching practice twice (after 200 Level and after 300 Level in a 4-year program) to enable them learn from the first experience and improve on it by the second time (NSUK, 2019). This makes a sound educational sense. However, most institutions send their students for teaching practice only once (ABU, BSU, UNIAgric, UNN, etc). The length of time could vary from three weeks to six weeks to one full school term. Some schools therefore, find TP posting rather disruptive and refuse to accept the student teachers to teach in their schools while others find it a good holiday time for their teachers to rest from teaching overload. However, the more critical aspect of this exercise seems to be the degree and quality of supervision of students during the exercise. Ideally, it would seem reasonable that the longer the time, the better for the training. In reality however, neither the time nor the supervision is adequate in most institutions. The teachers in training seem to prefer short time with minimum supervision as long as they can earn good grades. Yet the consequences of poor training eventually re

flect in the production of poor teachers, engineers, doctors, nurses, etc leading to lowering of the standard of education we dread to talk about. But how do practising teachers and teachers-in-training perceive their training through their expression of the benefits they now derive from it during their training?

Issues and challenges in the teaching practice exercise

As vital as this integral part of teacher training is, there are many issues and challenges faced by students when they are on teaching practice. Some of these challenges as documented by Mizzi, (2013); Yealy (2015); and Dutable (2019) include: effective management of students in the classroom, poor method of teaching, inability to plan lessons, ineffective usage of instructional materials, and lack of confidence among others. These could make the exercise not as beneficial as intended. Despite the enriching experiences during teaching practice, student teachers often experience challenges which may have significantly affected their ability to derive maximum benefit from the exercise. In-service teachers may remember teaching practice in a different way from pre-service teachers, as noted by Quick and Sieborger (2005). It is important that teacher trainers be mindful of the aspects that affect student teachers' experiences during teaching practice so that they may be able to assist them to achieve the desired outcomes from the exercise. The phenomenon of pre-service teachers being made to teach subjects they are not trained to teach has surfaced often enough for it to become a matter for concern for teacher trainers and this study tried to investigate it further.

The Research Problem

Preparing to become an effective teacher is an awesome challenge and the teacher trainer could easily get some of the blame if this is not adequately done. The outcome of poor preparation is the turning out of mediocre teachers who will eventually affect the overall standard of education. The teaching practice

exercise carries with it some basic assumptions such as: putting how to teach theories into practice in a real classroom, finding out areas of strengths and weaknesses to concentrate on, learning a few tricks from older more experienced class (cooperating) teachers, asking pertinent questions about what works in the classroom, and so on. It is also assumed that student teachers will get all the help they need from their supervisors, class teachers, and school administration. The overall intent is to equip the student teacher with the confidence, enthusiasm and preparedness for becoming a science teacher by giving him or her useful theoretical as well as practical handle on how to achieve success in the classroom. It is the equivalent of the doctors' clinical years of training or the architects' and engineers' industrial training exercise. Do science teachers look back in appreciation of how they were trained or wonder why their training has not properly equipped them?

How beneficial do science teachers (both pre-service and in-service) really find this exercise? What do they find beneficial and how can we improve on the exercise? Their training prepares them to teach specific science subjects but what do they actually teach? These are the questions this research is focused on. Research Question 1 (RQ1): What is the level of usefulness of the teaching practice exercise according to lessons learnt by science teachers?

Research Question 2 (RQ2): What is the level of usefulness of the teaching practice exercise to science teachers on the basis of subjects (biology, chemistry, physics and integrated science)?

Research Question 3 (RQ3): What science subjects are science teachers qualified to teach and which subjects do they actually teach in the school?

Research Method

The study used a survey design. This design was considered appropriate using an unstruc-

tured instrument tagged: Teachers' Perceived Usefulness of the Teaching Practice Questionnaire (TPUTPQ) for data collection. This was because authentic perspective of the teachers was sought rather than making them agree or disagree with researcher-given statements. The population of the study was all pre-service and in-service science teachers in Nasarawa State, Nigeria. The sample consisted of 515 (291 pre-service and 224 in-service) secondary school science teachers. The pre-service teachers were the current 400 Level students who have completed the teaching practice exercise and were about to graduate while the in-service teachers were those who are currently employed to teach science in the schools.

One intriguing question on the questionnaire was on what specific science subject(s) teachers were trained to teach and what subject(s) do they now teach? Data analysis was done by use of graphical presentations.

Results

The results are reported according to the stated research questions as follows:

RQ1:

What is the level of usefulness of the teaching practice exercise according to lessons learnt by science teachers?

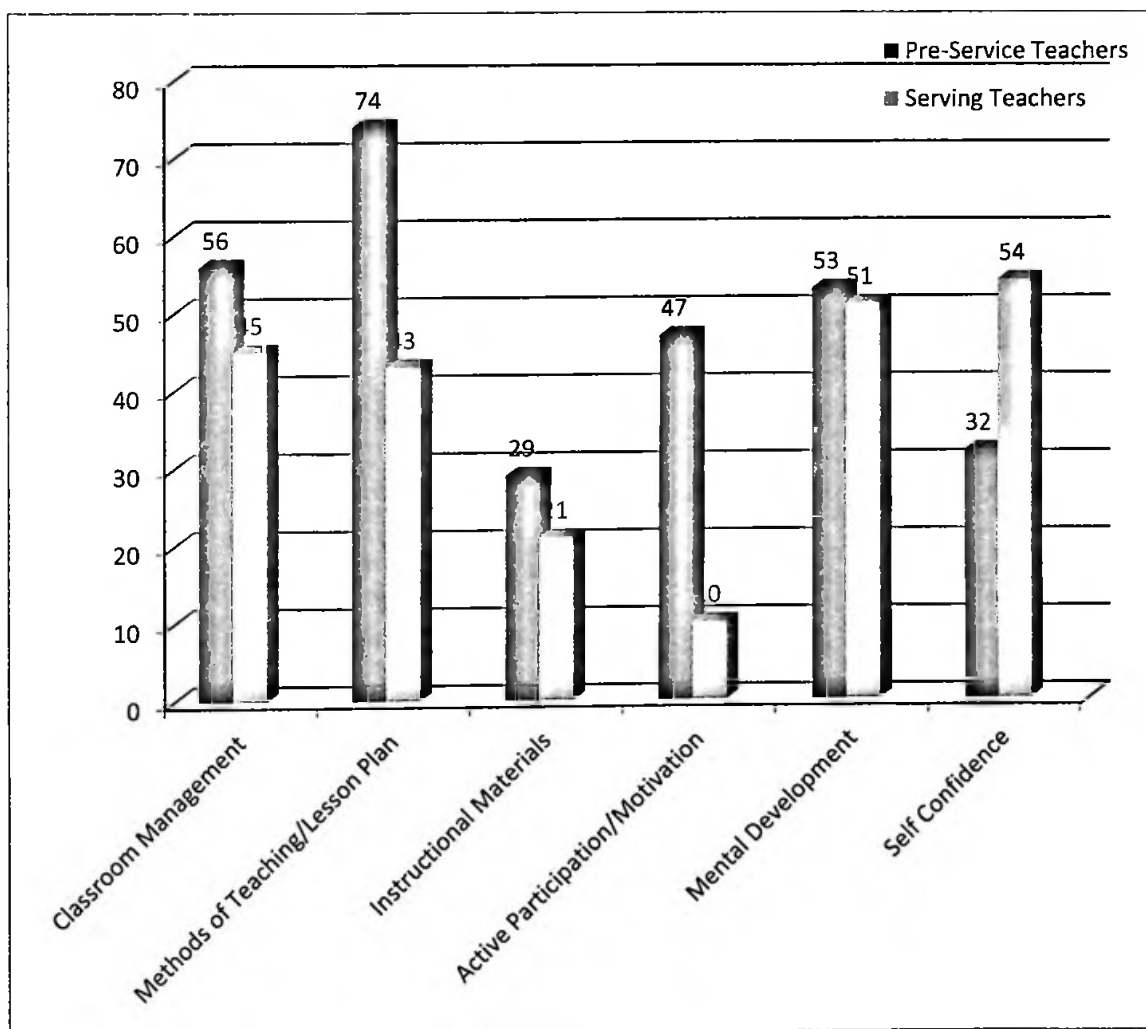


Figure 1: Lessons Learnt by Pre-Service and in-service Science Teachers from the Teaching Practice Exercise

One noticeable thing on Figure 1 is that both in-service and pre-service teachers learnt similar six lessons only in varying degree as rightly noted by Quick and Sieborger, (2005).

However, pre-service teachers noticeably learnt more in the areas of classroom management, methods of teaching/lesson planning and students' active participation/motivation

than in-service teachers. This is not surprising since what they learnt is fresher in their minds than in-service teachers. Greater in-service teachers' self-confidence is also not surprising because they are in the field already and are used to being teachers with experience.

RQ2:

What is the level of usefulness of the teaching practice exercise to science teachers on the basis of subjects (biology, chemistry, physics and integrated science)?

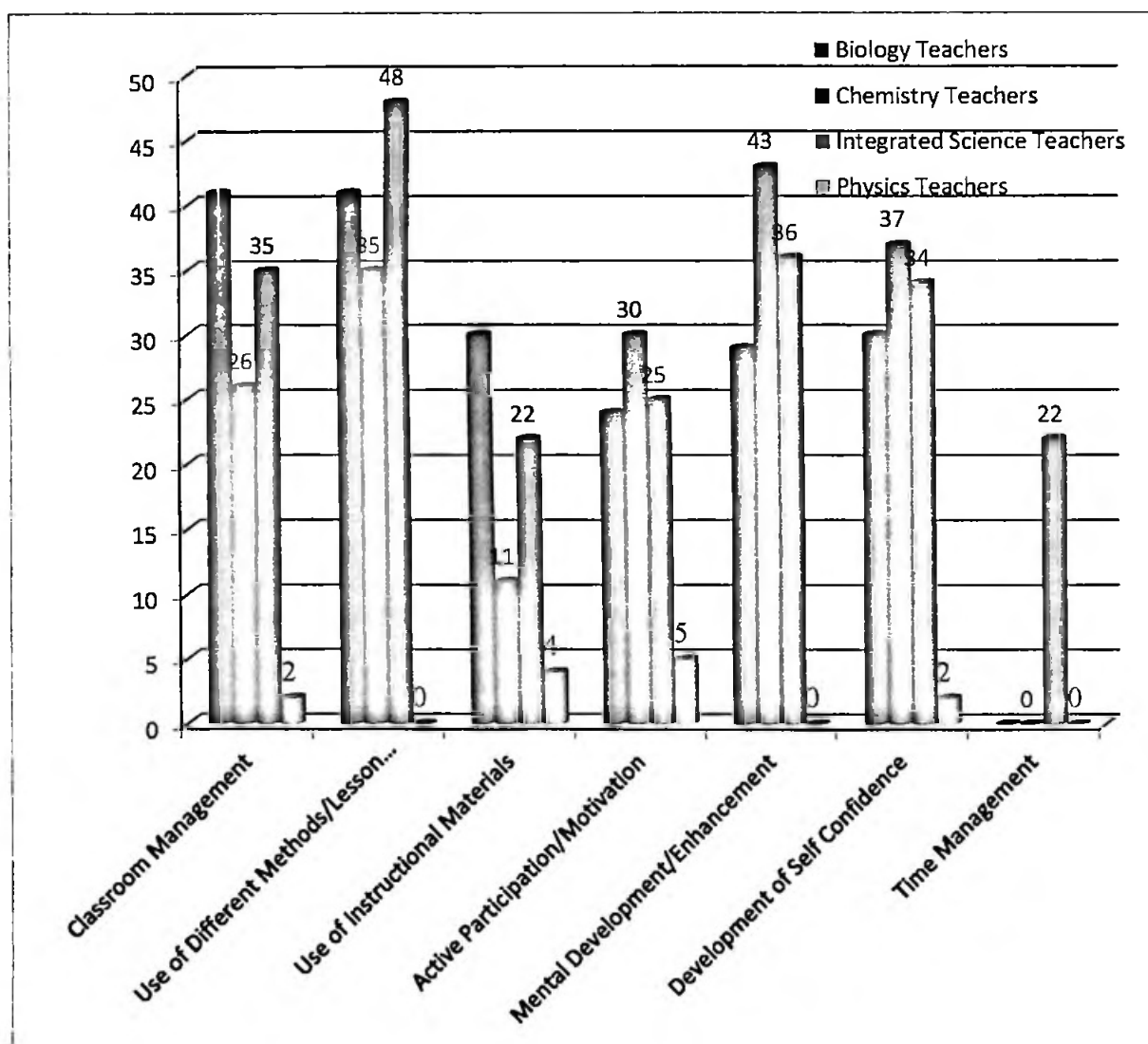


Figure 2: Lessons learnt by Biology, Chemistry, Integrated and Physics Teachers from Teaching Practice Exercise

Figure 2 shows an interesting pattern of physics teachers noticeably coming the least in all lessons learnt. This makes the subject of physics seem so difficult. Biology and integrated science teachers are similar in areas of classroom management, use of different teaching methods and use of instructional materials. Chemistry teachers excelled more in the areas

of students' active participation/motivation, mental development/enhancement and development of self-confidence. Integrated science teachers did commendably well in the area of time management.

RQ3:

What science subjects are science teachers qualified to teach and which subjects do they actually teach?

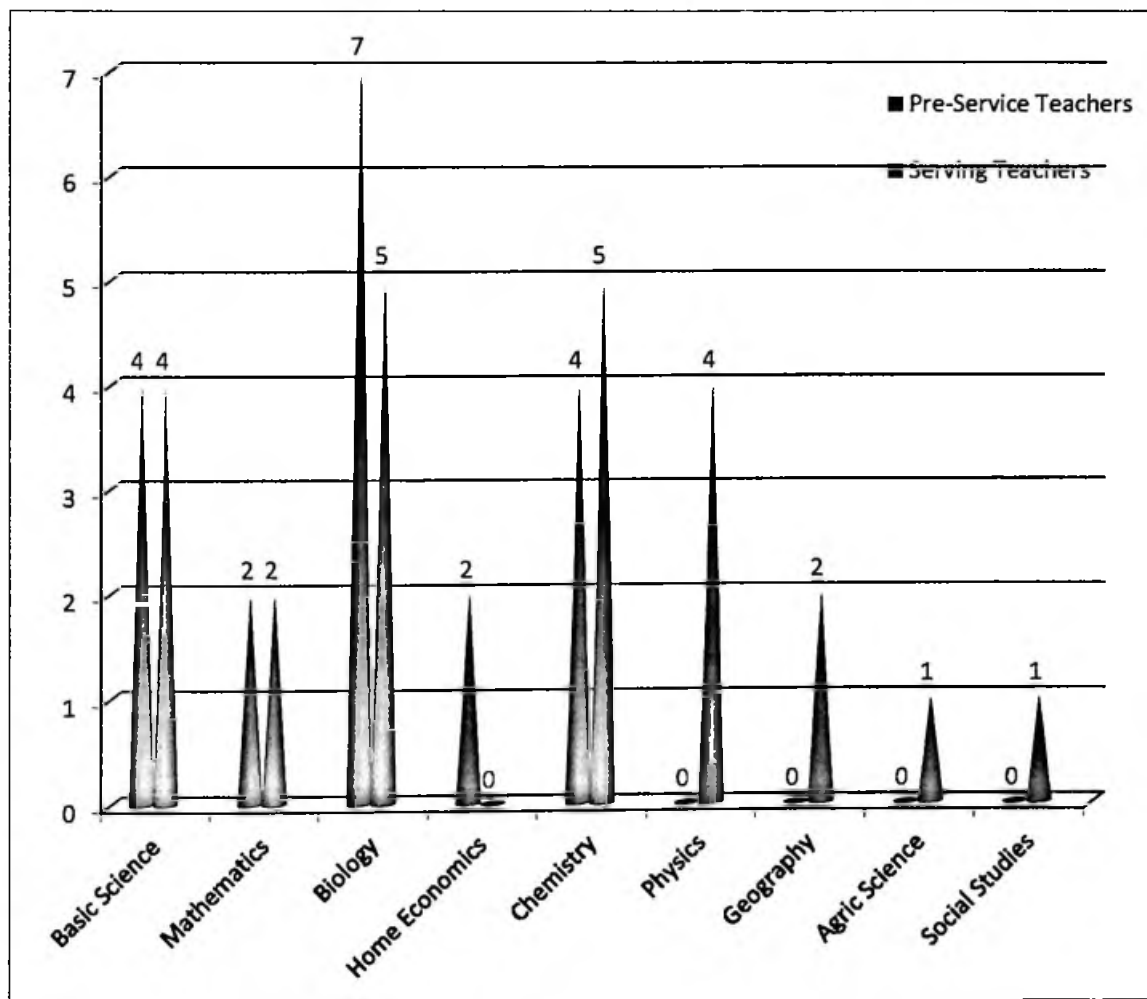


Figure 3a: Subjects taught by Pre-Service and in-service Biology Teachers

Figure 3a is a fascinating picture of eight subjects other than biology teachers are trained for that they are made to teach. That in-service

biology teachers are made to teach physics, geography and social studies and pre-service teachers are made to teach home economics is rather disturbing.

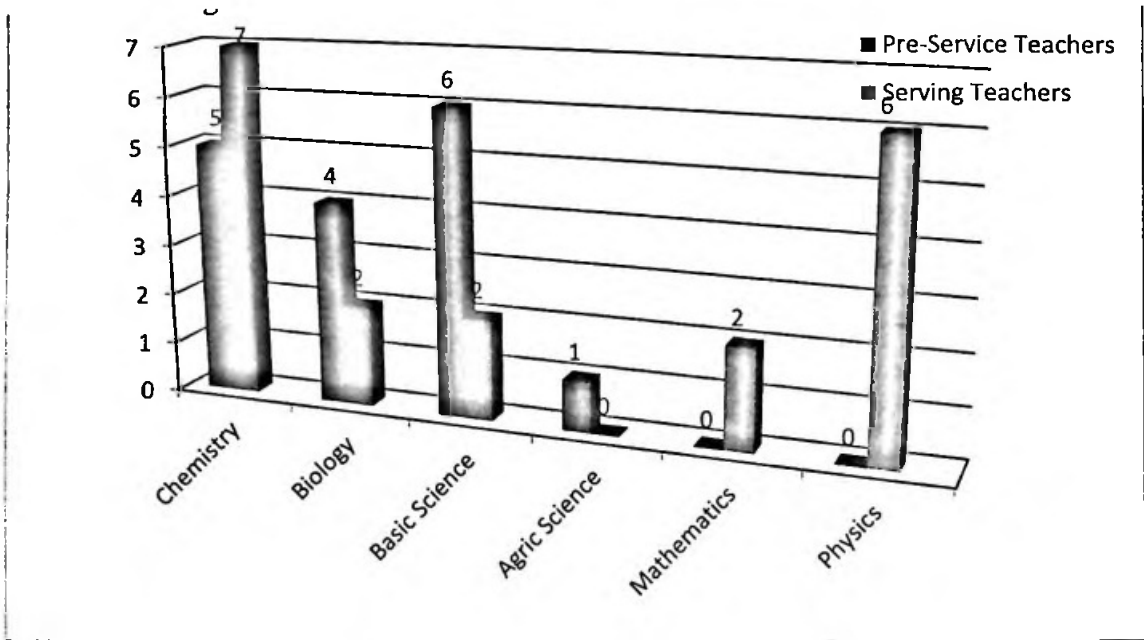


Figure 3b: Subjects taught by Pre-Service and in-service Chemistry Teachers

Figure 3b shows chemistry teachers teaching five other subjects other than the one they are

trained to teach. That most pre-service chemistry teachers are made to teach integrated science while in-service chemistry teachers are made to teach mathematics and physics is also quite disturbing.

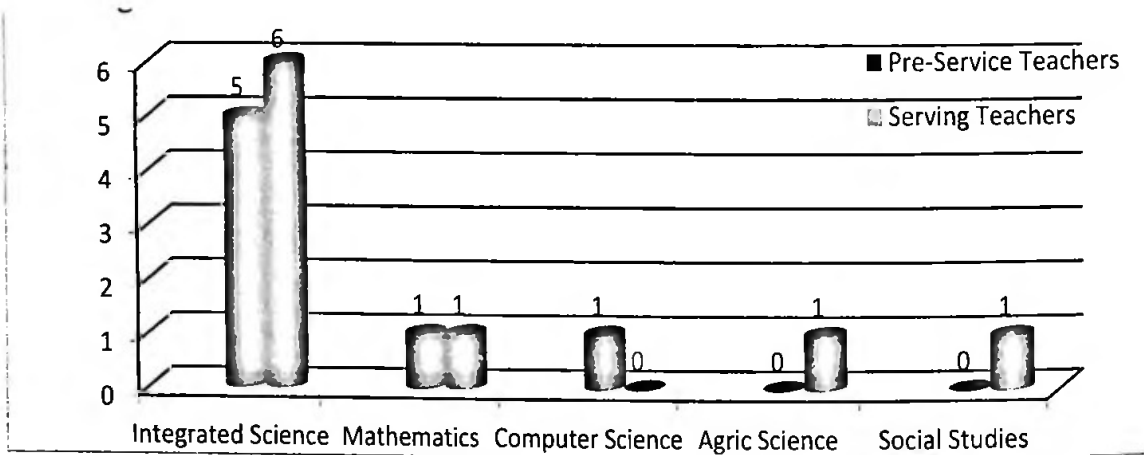


Figure 3c: Subjects taught by Pre-Service and in-service Basic/Integrated Science Teachers

Figure 3c shows basic teachers being made to teach four other subjects than they are trained to teach. Again, that in-service basic science

are made to teach mathematics, computer science, agric. science and social studies is quite disturbing because basic science teachers tend to be the weakest of all the science teachers.

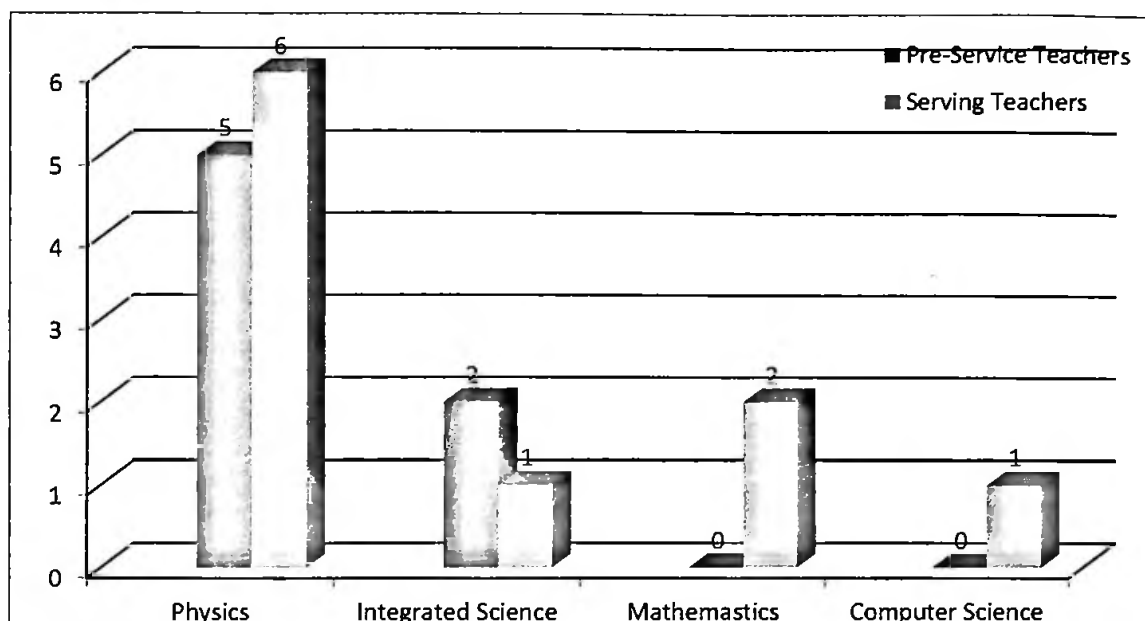


Figure 3d: Subjects taught by Pre-Service and in-service Physics Teachers

Figure 3d shows physics teachers being made to teach three other subjects other than they are trained to teach. These teachers come the closest to what is acceptable. Perhaps, physics teachers are so scarce, schools cannot afford to make the few available teach other subjects.

Discussion of Findings

The study revealed that Biology, Chemistry, Physics and Integrated Science teachers learnt the following; classroom management, development of self-confidence, use of instructional materials, and how to prepare and deliver lesson plan using different methods of teaching. Contrary to Mizzi (2013); Yealy (2015) and Dutable (2019)'s report from their studies in East Africa, this study discovered that lessons student teachers learnt during teaching practice are a problem to the respondents in their studies. The study also revealed that once teachers are employed, they may be assigned to teach any subject other than the one they specialize in. For example a biology teacher may be assigned to teach basic science, chemistry, mathematics, computer, even social studies. If this is so, should teacher trainers not be preparing teachers to handle more variety of

subjects instead of boxing them into one subject or pretending that they are training specialized teachers? We often make reference to qualified and unqualified teachers, if qualified means that you can teach only your specialty subject well, then most teachers are unqualified. Stronge, Ward and Grant (2011), Mizzi (2013) rightly drew the attention of educators to the danger in making teachers teach what they are not trained to teach because it negates the whole idea of specialized training. It connotes that anybody can teach anything, then why bother to train specialized teachers?

Conclusion and Recommendations

The findings indicate that both pre- and in-service science teachers view teaching practice as an important component in their training because it exposed them to the actual teaching and learning environment in which they can contextualise their theoretical knowledge gained during training. However, their employers often make them teach what they are not trained to teach, this makes it difficult to truly assess the full value of the teaching practice exercise. This is rather disturbing because we place much emphasis on training teachers for specific subjects but in the school, the contrary is happening. When teachers are made to teach what they are not

trained to teach, you cannot blame them for reading the textbook to the students. It is only a conscientious and creative teacher who will go beyond that! Something needs to change: either the way we train teachers or the way we use teachers in school. Basic science teachers seem to get less attention during teacher training but they are assigned any subject to teach after graduation. This is both puzzling and disturbing. Based on these findings, the following recommendations are made:

- 1). Teacher trainers should take note and remedy missing areas of emphasis needed in training effective 21st century teachers such as use of modern technology, project and inquiry methods of teaching.
- 2). Teacher trainers should also find positive ways to address the disturbing issue of specialized training versus generalized training of teachers. Perhaps training should be made more general – how to teach any subject, rather than specific subjects.
- 3). Physics teachers need to do something about making the subject seem so difficult since they learnt very little from the teaching practice exercise. Biology teachers, on the other hand, seem to be so versatile, they are assigned any subject to teach. We need further studies to clarify these two observations.
- 4). School proprietors should use their teachers more appropriately

Finally, we must listen to what research findings are telling us and respond appropriately if we are to improve the way we train teachers as Gyuse, Achor, Samaba, Chianson and Iortim (2015) reported from their study on how we can apply research findings to improve education.

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