Strategies Used in Assessing Mathematics of Teacher Trainees and Effect on the Mathematics Taught in Primary Schools in the South West Region of Cameroon

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Abstract: This study ‘strategies used in assessing mathematics of teacher trainees and effect on the mathematics taught in primary schools in the South West Region of Cameroon’ was carried out quantitatively with the use of the survey design. All 31 mathematics teacher trainers of teacher training colleges in the South West Region of Cameroon constituted the accessible population. Data was collected with the use of a questionnaire made up of 10 close ended items. Spearman rank correlation was used to analyse the date and the results show that the strategies used in assessing mathematics of teacher trainees have no significant effect on the mathematics taught in primary schools in South West Region. Based on the findings, it is recommended that the coefficient of mathematics in PSTTC could be increased to be among the highest as is the case in primary and secondary schools, mathematics could be assessed in the end of course examination as an independent subject with same high coefficient as general pedagogy, mathematics could be among the subjects to be compulsorily assessed during teaching practice at the end of course examination, and the assessment of student teachers when they teach mathematics during teaching practice could be done solely by mathematics teacher trainers.

Keywords: Strategies used in assessing, Primary School Teacher Training Colleges, Teaching of mathematics in primary schools.

Introduction

In Cameroon, the role of teachers to teach and to carry out assessment are both echoed in section 39 of Law N° 98/004 of 14 April 1998 which states that “Teachers shall be bound to teach, educate, provide educational guidance, promote the quest for scientific knowledge, carry out assessment and be of moral rectitude”. According to Tambo (2012), assessment is the process of developing, administering and marking tests and other assessment instruments for the purpose of finding out if learning took place during teaching. Airasian (1997) opines that assessment is the collection, synthesis and interpretation of information to aid the teacher in decision making. The assessment of mathematics in Primary School Teacher Training College (PSTTC) should therefore be able to inform mathematics teacher trainers and other education stakeholders whether learning of mathematics takes place during the teaching of mathematics in PSTTC. Teaching is all the activities done before, during and after interaction with learners in order to enable learning to take place (Tambo, 2012). Mathematics teacher trainers of PSTTC interact with student teachers for the learning of mathematics to take place. Upon graduation, student teachers are expected to interact with pupils so that pupils learn mathematics.

The mathematics that pupils will learn in primary school will depend to an extent, on the mathematics that the pupils will be taught. The mathematics that primary school teachers will teach, will also depend to an extent, on the amount of mathematics that student teachers learn while in PSTTC. The amount of mathematics that student teachers learn in PSTTC could also depend to an extent, on how they are motivated to learn mathematics. Tests and examination marks motivate students and so students will put in their best if they know that they will earn...
more marks in a test or examination.

**Background of the Study**

In the South West Region like in other regions of Cameroon, mathematics is one of the subjects examined at the entrance examination in PSTTC. Candidates sitting for the three-year and the two-year courses are examined in mathematics, English language and French language, while candidates sitting for the one-year course are examined in mathematics, French Language and general knowledge. It is seemingly the expectation of education stakeholders and particularly those of primary teacher education, that prospective student teachers of PSTTC would study and acquire a better knowledge of mathematics before writing the entrance examination. However, candidates must not have a pass mark in mathematics at the entrance examination before they are offered admission into a PSTTC, given that the scores in the various subjects are summed up and candidates declared successful if they score an average or above average mark. Consequently, prospective student teachers succeed in the entrance examination even without having a pass mark in mathematics. It could be suggested that this might not motivate prospective student teachers to put in their all in studying mathematics in preparation for the entrance examination.

Prior to the above-mentioned entrance examination, the academic certificates of prospective student teachers are examined in order to confirm if their certificates tie with their anticipated year of study. Worthy of note is the fact that mathematics is not a prerequisite for admission since prospective student teachers write the entrance examination and are offered admission into PSTTC without having a pass in mathematics at the G.C.E. Ordinary or Advanced Level. Seemingly, prospective student teachers might not be motivated to study and have a pass in at least Ordinary Level mathematics prior to their enrolment into PSTTC.

According to MINESEC (2014), mathematics is a coefficient one subject in PSTTC and therefore marked on twenty, while other subjects such as educational psychology and general pedagogy are coefficient three subjects and therefore marked on sixty. In PSTTC, English Language and English didactics are each weighted on coefficient one. Therefore, English is weighted on a total of coefficient two and marked on forty. This implies that in PSTTC, mathematics is not among the subjects with the highest weighting as it is the case in primary and secondary schools. It could be suggested that the relatively low coefficient of mathematics might not motivate student teachers to make sacrifices to learn adequate mathematics content and pedagogic knowledge, but rather do such sacrifices for subjects with higher coefficients that would earn them more marks.

The assessment of mathematics in the course of the training is mostly cognitive with the use of paper and pen, with candidates expected to reproduce what they are taught during mathematics lessons. During teaching practice in the course of the training, mathematics is among the subjects that student teachers are expected to teach. However, their lesson plans for mathematics and the instructional materials they wish to use are not necessarily examined and corrected by mathematics teacher trainers. When student teachers teach mathematics during teaching practice in the course of the training, they are not necessarily supervised by mathematics teacher trainers. Consequently, the lesson plans on mathematics and the teaching of mathematics are for the most part supervised by those who do not teach mathematics in PSTTC at all. On the contrary, the lesson plans and the teaching of subjects like Sports and Physical Education are done only by the teacher trainers of that subject. This raises doubts on the assessment made on the lesson plans, instructional materials and the actual teaching of mathematics by student teachers during teaching practice.

At the end of course Grade One examination, mathematics is not compulsorily examined during teaching practice. The three subjects that are compulsorily examined during teaching practice at the end of the course Grade One certificate examination are French Language (second language), music and songs, and sports and physical education. However, even if mathematics were to be examined during teaching practice, it would not necessarily be done by a mathematics teacher trainer. In the written part of the end of course Grade One examination, mathematics is examined...
alongside four other subjects, with each of them given four marks. Some other subjects such as general pedagogy are examined on twenty marks. Therefore, the weighting of mathematics at the end of course Grade One examination is relatively lower than that of subjects like general pedagogy and educational psychology. Moreover, candidates must not have a pass mark in mathematics for them to be declared successful in the final Grade One examination. It could be suggested that the manner in which mathematics is assessed at the end of course Grade One certificate examination both in the written examination and during teaching practice, might not motivate student teachers to put in their all to learn mathematics.

Experience shows that prospective student teachers have often performed poorly in mathematics at the entrance examination into PSTTCs. In the course of the training, student teachers continue with similar poor performances in mathematics during tests and end of term examinations. Similar poor performances in mathematics are common at the end of course Grade One Certificate examination. In spite of student teachers’ continuous poor performances in mathematics, it is expected that upon graduation, they would teach mathematics in primary schools.

**Statement of the Problem**

Student teachers of Primary School Teacher Training College (PSTTC) are expected to learn the mathematics taught to them by the mathematics teacher trainers. Upon graduation, student teachers are expected to teach mathematics in primary schools. However, the mathematics that student teachers will learn and by extension the mathematics that they will teach in primary school upon graduation, will depend on to an extent on how much they are motivated to learn mathematics in the training college.

Students are usually motivated to learn if they expect to score higher marks in the subject. If marks do not motivate student teachers to learn mathematics, then they may not learn mathematics that is adequate for them to teach mathematics in primary school. This may cause pupils to perform poorly in mathematics, develop a negative attitude towards mathematics, and consequently carry the negative attitude to post primary institutions. Poor performance in mathematics may also hinder their use of numeracy. It is against this backdrop that this study seeks to investigate the effect of the strategies used in assessing mathematics in PSTTChave on the teaching of mathematics in primary schools in the south west region of Cameroon.

**Objective of the Study**

The objective of the study is to investigate if the strategies used in assessing mathematics of teacher trainees have an effect on the mathematics taught in primary schools.

**Research Question**

To what extent do the strategies used in assessing mathematics of teacher trainees have an effect on the mathematics taught in primary schools?

**Conceptual and Theoretical Review**

**Assessment of Mathematics in PSTTCs**

Assessment of mathematics in PSTTCs is diagnostic, formative and summative. Diagnostic assessment is done before the start of the training programme to determine the mathematics ability of prospective student teachers. In PSTTCs in Cameroon, this is in the form of a paper and pen examination which candidates write in the entrance examination into PSTTCs. Formative assessment is done in the course of the teaching/learning process in order to track progress and to see if adjustments to the teaching strategy should be made in the course of the teaching/learning process. In PSTTCs in Cameroon, this takes the form of oral questions and answers during mathematics lessons, paper and pen assessments (continuous assessments), as well as performance-task assessment during teaching practice for the teaching of mathematics. Summative assessment is done at the end of the course to find out the extent to which the
It is the concern of teachers to find out if learning actually takes place, during and after pen examination and performance task, teaching practice (if chosen by the candidate).

According to the syllabuses for PSTTC (MINESEC, 2014), mathematics is a coefficient one subject while some other subjects are coefficient three. Therefore, during continuous assessments, mathematics is marked on twenty while coefficient three subjects like general pedagogy are marked on sixty. At the end of course teacher Grade One Certificate Examination called “Certificat' Aptitude Pedagogique” (CAPEM), mathematics is examined together with four other subjects under a broad field called Didactics of Sciences and Technologies. Didactics of Sciences and Technologies is a coefficient three broad field paper in which the five different subjects including Didactics of Mathematics are weighted equally with four marks each. Meanwhile, in the same Grade One Certificate Examination, some single subjects like general pedagogy are coefficient three subjects.

Fowler and Poetter (2004), hold the view that one of the reasons why elementary teachers in France are knowledgeable about mathematics is due to a policy that focuses on mathematics content and pedagogy in teacher-education programs. If there was a policy in Cameroon that focuses on mathematics content and pedagogy in primary teacher-education programs, then mathematics might have been allocated a higher coefficient as it is the case in primary school where mathematics is among the subjects with the highest coefficients (coefficient 5). This relatively low coefficient assigned to mathematics may not motivate student-teachers to put in their all in studying mathematics. This may have far reaching consequences on their mathematics content and pedagogic knowledge, and thus in the teaching of mathematics in primary school.

Lewin and Stuart (2003) opine that assessment in PSTTC in many developing countries is narrow in scope, restricted in cognitive level, and paper rather than practice based. In Cameroon, the assessment of student teachers’ mathematics content and pedagogic knowledge is practice based during teaching practice. However, this practice base assessment of mathematics can only be assured during teaching practice for continuous assessment and not during the end of course Grade One Certificate Examination. During teaching practice at the end of course Grade One Certificate Examination, candidates are compulsorily assessed on French Language, Sport and Physical Education, Music and any other subject. Mathematics may only be assessed if the candidate chooses it in place of the ‘any other subject.’ This further puts to doubts how much the policy focuses on mathematics content and pedagogy in primary teacher-education programs in Cameroon.

According to Lewin and Stuart (2003) most of the assessment instruments during teaching practice in some low income African countries such as Ghana, consists of lists of discrete skills or ‘teacher behaviours’ which observers (supervisors) grade, usually on a four- or five-point scale, and then total to give a letter grade or percentage mark. They add that in most cases grades were based on one short visit by a single supervisor, raising doubts about validity and reliability, and that it is often unclear how teaching practice assessments were incorporated in the final grade. Assessment of teaching practice at the end of course Grade One certificate examination in PSTTCs in the South West Region, is also done using a list of discrete skills which supervisors grade based on one short visit by a supervisor or a few of them, and of course mathematics is one of the subjects assessed as such (if chosen by the candidate). By means of the discrete list, each of the four subjects is assessed on twenty marks. At the end of the assessment, the marks of all the four subjects are summed up and an average calculated on twenty. This average on twenty is later multiplied by three, and the total mark added to the total marks of the written examination. This implies that at the end of course Grade One Examination, teaching practice in PSTTCs in the South West Region is assessed as a coefficient three subject. However, doubts about validity and reliability with respect to the assessment of mathematics are further compounded by the fact that the assessment of student teachers while they teach mathematics, is not necessarily done by mathematics teacher trainers.

It is the concern of teachers to find out if learning actually takes place before, during and after
teaching. Seemingly, it might be the concern of mathematics teacher trainers to find out if mathematics is learnt before, during and after teaching. However, given the way mathematics is assessed in PSTTC in Cameroon, it is likely that student teachers may succeed in the Grade One Certificate Examination and be awarded the Grade One Certificate even without them having a pass in mathematics among the subjects in their entry certificates, at the entrance examination, during continuous assessments and in the end of course Grade One Certificate examination. For such student teachers, it goes without saying that adequate learning of mathematics did not take place before, during and/or after the teaching of mathematics. This raises doubts as to how such student teachers who have always failed in mathematics, would teach mathematics in primary schools.

Mathematics taught in primary schools

Whitburn (2002) is of the opinion that it is in the crucial years of primary schooling that the foundations for later learning in mathematics need to be laid, since success in the later years of schooling depends on a secure understanding of number structure. Cockroft (1982) as cited in Whitburn (2002) states that: ‘No efforts to improve the quality of mathematics teaching are likely to succeed unless there is an adequate supply of suitably qualified mathematics teachers.’ It could be suggested that efforts to improve the quality of mathematics teaching in primary schools can only succeed if student teachers upon their graduation, are adequately trained and are qualified to teach mathematics in primary schools. Moses & Cobb (2001, p. 5) as cited in Borko and Whitcomb (2008, p. 565) state that "economic access and full citizenship depend crucially on math and science literacy". Seemingly, the foundation for later learning in mathematics needs to be laid in primary schools that pupils can acquire full citizenship in future.

According to Achu (2013), the teacher is a key participant in the teaching/learning process. Ornstein and Hunkins (2009, p. 266) are of the opinion that teachers are one of the key players in implementing the mathematics syllabus for primary schools. Section 37 of Law No 98/004 of 14 April 1998 says that the teacher shall be the principal guarantor of the quality of education. Given the above-mentioned roles of teachers (implementer of syllabus and guarantor of quality education), it would seem that primary school teachers have the task to implement the primary school mathematics syllabus, ensuring that pupils acquire quality mathematics education.

There is specificity to the mathematics that teachers need to know and know how to use (Adler and Davis, 2006, p. 271). Seemingly, the mathematics curriculum for Primary School Teacher Training Colleges (PSTTCs) is aimed at improving the quality of mathematics content and pedagogic knowledge of the student-teachers, as well as equips them with adequate knowledge, skills and attitudes to be able to teach mathematics in primary schools. Therefore, the amount of mathematics that primary school pupils acquire depends on an extent on the quality of mathematics training acquired by the student-teachers.

According to Barnes and Shinn-Taylor (1988, p. 294) the quality of provision in particular primary school curriculum areas by primary school teachers in North-East England is hampered by their own 'low' competence. Perhaps mathematics is among the primary school curriculum areas for which primary school teachers have low competence. Kerslake (2001, p. 110) opines that the poor performance of English children in mathematics indicates that educational rather than socio-cultural factors are the causes. He adds that one of the real problems in relation to the teaching of mathematics is that many primary school teachers lack confidence in mathematics. Perhaps primary school teachers in South West Region have ‘low’ competence in mathematics and therefore lack confidence in the subject.

Expectancy Theory by Vroom (1964)

Expectancy theory originally proposed by Vroom (1964) says that an individual’s behavior towards work depends on the valences and expectancies associated with the work. According to Vroom (1964) valence is the perceived positive or negative worth of potential outcomes for doing work. Expectancy is the subjective probability that a given effort will yield a specified
According to Norman (1988), this theory is built upon three concepts namely valence, instrumentality and expectancy, reason why the theory is also referred to as Valence-Instrumentality-Expectancy (VIE) theory. Valence has to do with the perceived positive or negative worth or attractiveness of potential outcomes, rewards, or incentives for working in an organisation. Instrumentality is the perceived relationship between incentive and a given level of performance. Expectancy is the subjective probability that a given effort will yield a specified performance level. Expectancy theory is based on the notion that motivation is a voluntary process in which decisions relate to psychological events that accompany behaviour and that forces in the individual and the environment combine to determine behaviour (Norman, 1988). Therefore, individuals will perform a particular organisational task based on their perceived relationship between the task to be performed and the type of outcomes or rewards that they expect to have by the time the task is completed.

Burtonet al. (1992/1993) hold the view that individuals continuously evaluate the outcomes of their own behaviour and subjectively assess the likelihood that their action will lead to those outcomes. A person's choice of the extent of effort invested is based on the systematic analysis of (1) the values of rewards from those outcomes, (2) the likelihood that rewards result from those outcomes, and (3) the likelihood of reaching those outcomes through actions (DeSanctis, 1983).

Geiger and Cooper (1995) opine that Vroom's 1964 expectancy theory is one perspective through which the link between motivation and performance at work has been explored. According to Geiger and Cooper (1995), student teachers' performance in mathematics would be determined by their motivation to study mathematics in teacher training college. The National Mathematics Advisory Panel (NMAP)(2008c) as cited in Borko and Whitcomb (2008) state that a learner's goals and beliefs influence task engagement and self-efficacy, which in turn lead to higher mathematical outcomes.

This theory fits into this study because the likely expectation of every student teacher is to succeed in the Grade One Certificate Examination within the given time frame as per their entry qualifications and levels. In both continuous assessments and end of course Grade One Certificate Examinations, it is the average percentage marks for all the subjects that is considered. It is therefore likely that student teachers would be motivated to put in more effort in studying subjects with higher coefficients like educational psychology that would earn them more marks, than studying mathematics which is a coefficient one subject, thus earning less marks. The situation may be worse for student teachers who had lost connection with mathematics while in secondary school and for those who generally have a poor attitude towards mathematics and/or have weak mathematics ability. These student teachers may not see the need to strain so much reconnecting with mathematics or trying to change their attitude towards mathematics. After all what they expect of their training is a pass in the continuous assessments and in the end of course Grade One Certificate Examination, which they could achieve without a pass in mathematics.

Seemingly, the effort that student teachers will put in studying mathematics would depend on their expectations of the benefit of mathematics. Their performance would depend on their belief that exerting effort would actually lead to higher performance in mathematics. Student teachers would probably put in more effort to study mathematics if they perceive that they would score higher marks in mathematics and vice versa. Student teachers would probably be even more motivated to study mathematics if they perceive that their score in mathematics would play a very significant role in their overall score in continuous assessments and in the end of course examination and vice versa. Perhaps student teachers would study mathematics based on their perceived relationship between their study of mathematics and the marks that they expect to score after studying mathematics. The effort that student teachers would put in to study mathematics would probably depend on their perceived positive or negative outcome. Given the weak mathematics ability of most student teachers, it is likely that they might not perceive a
positive reward after putting in a given amount of effort. Seemingly, student teachers would compare between studying mathematics and studying other subjects such as psychology and general pedagogy. After such comparison, they would most likely study subjects like general pedagogy and psychology, for which they are more likely to score higher marks due to their higher coefficients and the weak mathematics ability of student teachers. It could therefore be suggested that student teachers’ performance in mathematics would depend to an extent on how they are motivated to study mathematics in PSTTC.

Methodology

This quantitative study used the survey research design. This study was carried out in the six divisions that make up the South West Region of Cameroon. The divisions are: Fako, Meme, Manyu, Lebialem, KupeManenguba, and Ndian. Each of the divisions has at least a Primary Teacher Training College that is owned by the government and commonly called Government Teachers Training College (GTTC), a religious denomination, or a private individual.

The accessible population was made up of all 31 mathematics teacher trainers in PSTTC in the various divisions as shown on the table below.

<table>
<thead>
<tr>
<th>Division</th>
<th>Primary School Teacher Training College.</th>
<th>Number of mathematics teacher trainers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fako</td>
<td>GTTC Buea</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>GTTC Limbe</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>St John Bosco TTC Buea</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Remedial TTC Buea</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>St Andrew TTC Limbe</td>
<td>1</td>
</tr>
<tr>
<td>Meme</td>
<td>GTTC Kumba</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Mary Mussongo TTC Kumba</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>NAVOC Kumba</td>
<td>1</td>
</tr>
<tr>
<td>Manyu</td>
<td>GTTC Mamfe</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Blessed TTC Mamfe</td>
<td>1</td>
</tr>
<tr>
<td>Ndian</td>
<td>GTTC Mundemba</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>GTTC Akwa</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>BuaNaseri TTC EkondoTiti</td>
<td>1</td>
</tr>
<tr>
<td>KupeManenguba</td>
<td>GTTC Bangem</td>
<td>3</td>
</tr>
<tr>
<td>Lebialem</td>
<td>GTTC Fontem</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>31</td>
</tr>
</tbody>
</table>

Purposive sampling technique was used on all 31 mathematics teacher trainers that made up the sample. With the use of Spearman Rank correlation, the Likert-type items on the questionnaire were analysed.

Decision Rule

Predetermined alpha (α) = 0.05

The sig. (2-tailed) which is the p-value is compared with α

When the calculated sig. (2-tailed) or p-value is greater than the predetermined α (0.05), i.e. sig. (2-tailed) > α, it implies that there is no significant relationship and so the null hypothesis would be accepted.

When the calculated sig. (2-tailed) or p-value value is less than the predetermined α (0.05) i.e. sig. (2-tailed) < α, it implies that there is a significant relationship and so the null hypothesis would be rejected.

By convention, the independent variable and the dependent variable have a relationship which is:
Perfect if $r = 1$;
- Positive if $r > 0$. In this case the researcher has four possible qualities:
  - Very strong if $r > 0.8$.
  - strong if $r$ is between 0.5 and 0.8;
  - medium intensity if $r$ is between 0.2 and 0.5;
  - low if $r$ is between 0 and 0.2

Negative if $r < 0$. In this case the researcher has four possible qualities:
- Very strong if $r < - 0.8$.
- strong if $r$ is between -0.8 and -0.5;
- medium intensity if $r$ is between -0.2 and -0.5;
- low if $r$ is between -0 and -0.2;
- Zero if $r = 0$.

Findings
Findings on the strategies used in assessing mathematics in PSTTTC are presented on the table below.

*Presentation of findings based on strategies used in assessing mathematics in primary school teacher training college (PSTTTC).*

<table>
<thead>
<tr>
<th>Items</th>
<th>U</th>
<th>SD (%)</th>
<th>D</th>
<th>A (%)</th>
<th>SA (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student teachers’ performance in mathematics at the entrance examination into PSTTTC places them at an almost comfortable position with respect to the mathematics that awaits them in the training college</td>
<td>1</td>
<td>(3.2%)</td>
<td>8</td>
<td>(25.8%)</td>
<td>16</td>
</tr>
<tr>
<td>The coefficient of mathematics during continuous assessment encourages student teachers to put in their best in studying mathematics</td>
<td>1</td>
<td>(3.2%)</td>
<td>6</td>
<td>(19.4%)</td>
<td>16</td>
</tr>
<tr>
<td>A pass in mathematics at the end of course (grade one) examination already guarantees a pass in the entire end of course examination</td>
<td>2</td>
<td>(6.5%)</td>
<td>14</td>
<td>(45.2%)</td>
<td>14</td>
</tr>
<tr>
<td>The proportion of mathematics compared to the entire end of course (grade one certificate) examination motivates student teachers to study mathematics</td>
<td>2</td>
<td>(6.5%)</td>
<td>11</td>
<td>(35.5%)</td>
<td>17</td>
</tr>
<tr>
<td>During continuous assessment and Grade One Certificate examination, student teachers’ mathematics content knowledge is assessed separately from their mathematics pedagogic knowledge</td>
<td>0</td>
<td>(0.0%)</td>
<td>12</td>
<td>(38.7%)</td>
<td>15</td>
</tr>
<tr>
<td>During continuous assessment and Grade One Certificate examination, student teachers’ performance in mathematics during teaching practices plays a major part in their overall performance at the end of course examination.</td>
<td>1</td>
<td>(3.2%)</td>
<td>8</td>
<td>(25.8%)</td>
<td>14</td>
</tr>
<tr>
<td>Student teachers will likely be more serious with mathematics lessons if the coefficient of mathematics is increased</td>
<td>1</td>
<td>(3.2%)</td>
<td>0</td>
<td>(0.0%)</td>
<td>4</td>
</tr>
</tbody>
</table>

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Only a handful of mathematics teacher trainers (19%) were in agreement that student teachers’ performance in mathematics at the entrance examination into PSTTC places them at an almost comfortable position with respect to the mathematics that awaits them in the training college. A comfortable majority of them (77.4%) rather held the view that student teachers’ performance in mathematics at the entrance examination into PSTTC does not place them at an almost comfortable position with respect to the mathematics that awaits them in the training college. Very few of them (3.2%) remained undecided with respect to this point.

Just about one quarter of mathematics teacher trainers (25.8%) said that the coefficient of mathematics during continuous assessment encourages student teachers to put in their best in studying mathematics. Almost three quarters of them (71.0%) shared the view that the coefficient of mathematics during continuous assessment does not encourage student teachers to put in their best in studying mathematics. The undecided position was shared by very few mathematics teacher trainers (3.2%).

Very few mathematics teacher trainers (3.2%) were of the opinion that a pass in mathematics at the end of course (Grade One) examination already guarantees a pass in the entire end of course examination. Almost all mathematics teacher trainers (90.4%) opined that a pass in mathematics at the end of course (Grade One) examination does not guarantee a pass in the entire end of course examination. A few of them (6.5%) were undecided on whether or not a pass in mathematics at the end of course (Grade One) examination already guarantees a pass in the entire end of course examination.

Almost all mathematics teacher trainers (90.3%) said that the proportion of mathematics compared to the entire end of course (Grade One Certificate) examination does not motivate student teachers to study mathematics. Very few of them (3.2%) said otherwise, while a handful of them (6.5%) were undecided.

A few mathematics teacher trainers (12.9%) attested that during continuous assessment and Grade One Certificate examination, student teachers’ mathematics content knowledge is assessed separately from their mathematics pedagogic knowledge. A large majority of them (87.1%) were of the opinion that during continuous assessment and Grade One Certificate examination, student teachers’ mathematics content knowledge is not assessed separately from their mathematics pedagogic knowledge.

About a quarter of mathematics teacher trainers (25.9%) held the view that during continuous assessment and Grade One Certificate examination, student teachers’ performance in mathematics is assessed more by the use of written test/examinations than by the use of practical teaching of mathematics.

During teaching practice (continuous assessment and Grade One Certificate), mathematics teacher trainers are the ones who supervise student teachers when they are teaching mathematics. Just about one quarter of mathematics teacher trainers (25.8%) said that the coefficient of mathematics during continuous assessment encourages student teachers to put in their best in studying mathematics. Only a handful of mathematics teacher trainers (19%) were in agreement that student teachers must teach while they are teaching mathematics. Very few mathematics teacher trainers (3.2%) were of the opinion that a pass in mathematics at the entrance examination into PSTTC does not place them at an almost comfortable position with respect to the mathematics that awaits them in the training college.
mathematics during teaching practices plays a major part in their overall performance at the end of course examination. Most of them (71%) however, had a contrary view. They were of the opinion that during continuous assessment and Grade One Certificate examination, student teachers’ performance in mathematics during teaching practices does not play a major part in their overall performance at the end of course examination. A very small percentage of mathematics teacher trainers (3.2%) were undecided so far as this issue is concerned.

A large majority of mathematics teacher trainers (83.9%) were in agreement that, student teachers will likely be more serious with mathematics lessons if the coefficient of mathematics is increased. A handful of them (12.9%) opposed the view of that large majority. They instead held the view that increasing the coefficient of mathematics will not cause the student teachers to be more serious with mathematics lessons. A very small percentage of mathematics teacher trainers (3.2%) were undecided on whether or not student teachers will be more serious with mathematics lessons if the coefficient of mathematics is increased.

Almost all the respondents (90.3%) agreed that in PSTTC, mathematics is assessed more by the use of written test/examinations than by the use of practical teaching of mathematics. A small percentage of them (6.4%) disagreed with the view of the majority, while a much smaller percentage (3.2%) was undecided.

About nine out of ten mathematics teacher trainers (90.3%) opined that during teaching practice (continuous assessment and Grade One Certificate examination), mathematics teacher trainers are not the ones who supervise student teachers when they are teaching mathematics. However, about one out of ten mathematics teacher trainers (9.7%) said that during teaching practice (continuous assessment and Grade One Certificate examination), mathematics teacher trainers are the ones who supervise student teachers when they are teaching mathematics.

A majority of mathematics teacher trainers (64.5%) attested that mathematics is not one of the subjects that student teachers must teach while undergoing teaching practice at the end of the course (Grade One Certificate) examination. Some of the mathematics teacher trainers (35.5%) rather said that mathematics is one of the subjects that student teachers must teach while undergoing teaching practice at the end of the course (Grade One Certificate) examination.

Generally, most mathematics teacher trainers (66.1%) held the view that the strategies used in assessing mathematics in PSTTC is not the best and cannot therefore play a positive role in the teaching of mathematics in primary school. Some of them (33.2%), however, appeared positive with respect to the strategies used in assessing mathematics in PSTTC. A few of them (2.9%) were undecided so far as the strategies used in assessing mathematics in PSTTC are concerned. This small group of mathematics teacher trainers were consequently undecided as to whether or not the strategies used in assessing mathematics in PSTTC have an effect on the teaching of mathematics in primary school.

**Effect of strategies used in assessing mathematics of teacher trainees on the teaching of mathematics in primary school**

<table>
<thead>
<tr>
<th>Strategies used in assessing mathematics</th>
<th>Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Count</td>
<td>3</td>
<td>10</td>
<td>1</td>
<td>14</td>
</tr>
<tr>
<td>% of Total</td>
<td>9.7%</td>
<td>32.3%</td>
<td>3.2%</td>
<td>45.2%</td>
</tr>
<tr>
<td>Count</td>
<td>3</td>
<td>9</td>
<td>5</td>
<td>17</td>
</tr>
<tr>
<td>% of Total</td>
<td>9.7%</td>
<td>29.0%</td>
<td>16.1%</td>
<td>54.8%</td>
</tr>
<tr>
<td>Total</td>
<td>6</td>
<td>19</td>
<td>6</td>
<td>31</td>
</tr>
<tr>
<td>% of Total</td>
<td>19.4%</td>
<td>61.3%</td>
<td>19.4%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Strategies used in assessing mathematics * The teaching of math in primary school

Crosstabulation
According to the table above, a slight majority of mathematics teacher trainers (54.8%) generally agreed on the strategies used in assessing mathematics in PSTTC. About four out of five mathematics teacher trainers (80.7%) generally agree on the teaching of mathematics in primary school. This shows that there is a strong relationship between the strategies used in assessing mathematics in PSTTC and the teaching of mathematics in primary school.

However, a reasonable percentage of mathematics teacher trainers (45.2%) disagreed on the strategies used in assessing mathematics in PSTTC. About one fifth of them (19.4%) disagreed on the mathematics taught in primary school.

The table also shows that 35.5% of those who disagreed on the strategies used in assessing mathematics in PSTTC generally agreed on the mathematics taught in primary school. On the other hand, 19.4% of those who agreed on the strategies used in assessing mathematics in PSTTC disagreed on the mathematics taught in primary school.

Strategies used in assessing mathematics and the mathematics taught in primary school are shown in picture form below.

![Bar Chart](image)

**Strategies used in assessing mathematics**

**The teaching of math in primary school**

**Disagree**

**Agree**

**Strongly Agree**

**Count**

0 2 4 6 8 10

**Disagree**

**Agree**

**Correlations of strategies used in assessing mathematics in PSTTC and the mathematics taught in primary school**

The figure above shows that some of the respondents who agreed as well as some who disagreed on the strategies used in assessing mathematics in PSTTC, agreed on the mathematics taught in primary school. A strong agreement on the mathematics taught in primary school was also shown by some respondents who agreed on the strategies used in assessing mathematics in PSTTC as well as some of those who disagreed.

The figure also shows that some respondents who agreed and some who disagreed on the strategies used in assessing mathematics in PSTTC, disagreed on the mathematics taught in primary school.

**Correlations of strategies used in assessing mathematics in PSTTC and the mathematics taught in primary school**

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According to Amin (2005, p. 386), the sig (2-tailed) or p-value is compared with the predetermined \( \alpha \) value of 0.05 and a decision taken. Amin (2005, p. 329) says that if the calculated sig. (2-tailed) or p-value is greater than the predetermined \( \alpha \) value of 0.05, then the null hypothesis is accepted.

The table above shows that the calculated sig. (2-tailed) value (.261) is greater than the predetermined \( \alpha \) value (.05). That is, Sig. (2-tailed) > \( \alpha \). This indicates that there is no significant relationship between the strategies used in assessing mathematics in PSTTC and the teaching of mathematics in primary school. This therefore rejects \( H_{a3} \) and accepts \( H_{03} \), implying that in this study, the strategies used in assessing mathematics in PSTTC have no significant impact on the teaching of mathematics in primary school.

**Conclusion**

The strategies used in assessing mathematics in PSTTC have no significant effect on the teaching of mathematics in primary school. Student teachers who never had a pass in mathematics in their entry certificates, in the entry examination into PSTTC, during continuous assessment, and in the end of course examination, still end up being successful in the Grade One Certificate Examination. Mathematics has a lower weighting in PSTTC compared to subjects like general pedagogy and psychology. It is a coefficient one subject during continuous assessment. In the end of course examination, it is marks on four marks after combining it with other subjects to form a broad field subject for the purpose of the examination. During teaching practice, the teaching of mathematics is not necessarily assessed by mathematics teacher trainers. Moreover, the teaching of mathematics may not be assessed during teaching practice at the end of course examination. Given the manner in which mathematics is assessed in PSTTC, student teachers are not motivated to put in their all in learning mathematics because they can succeed in the various stages of assessment even without ever having a pass in mathematics.

**Recommendations**

1. The coefficient of mathematics in PSTTC could be increased to be among the highest as is the case in primary and secondary schools. This could motivate student teachers to put in their all in studying mathematics given its contribution to their overall success.

2. Mathematics could be assessed in the end of course examination as an independent subject with same high coefficient as general pedagogy, and not combined with other subjects to form a broad field subject. Such assessment could test both content and pedagogic knowledge. This could motivate student teachers to study mathematics given the contribution that it makes in the overall end of course examination.

3. Mathematics could be among the subjects to be compulsorily assessed during teaching practice at the end of course examination just as music and sports. This might cause student teachers to put in more effort in studying mathematics pedagogic knowledge.

4. The assessment of student teachers when they teach mathematics during teaching practice could be done solely by mathematics teacher trainers just as it is the case with the teaching of French language and sports. This would enable mathematics teacher trainers to easily
identify student teachers’ weaknesses in content and pedagogic knowledge and thus effect corrections accordingly.

References


