



## AN INVESTIGATION OF THE EFFICACY OF MENTORING AND SUPERVISION TOWARD IMPROVING TEACHING PROFESSION OF THE PROSPECTIVE SCIENCE AND MATHEMATICS TEACHERS DURING TEACHING PRACTICE IN SCHOOLS

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### Abstract

*This paper investigated the efficacy of mentoring and supervision toward improving teaching profession of the prospective science and mathematics teachers during teaching practice sessions where Lupanga and Morogoro secondary schools were selected. Many challenges have been reported by different scholars on mentoring and supervision during teaching practice exercise in schools hence the researcher doubt whether mentoring and supervision provided to prospective science and mathematics teachers attain its efficacy toward improving their teaching profession. The study employed qualitative approach with a case study design. Observation, key informant interview and focus group discussions were the main methods of data collection where 38 respondents were purposively involved in data collection. Content analysis was used to analyze data thematically. The study revealed that the mentoring and supervision to prospective science and mathematics teachers during teaching practice session in schools did not attain its efficacy that was to improve their teaching profession as the mentoring provided to prospective science and mathematics teachers were minimal and poor in the practicing schools. Also the assessment conducted by supervisors were not proper toward improving teaching profession for example table assessment, short time in assessing student teachers in classrooms, differences by themselves in stating specific objectives which made student teachers to be confused and lack of the provision of constructive feedback to the student teachers after assessment.*

**Keywords:** *Mentoring, Supervision, Efficacy, Teaching Practice, Science and Mathematics, Prospective Science and Mathematics Teachers, Student Teachers.*

During teaching practice exercise student teachers are attached to the subject teachers and heads of subjects as mentors departments so as to guide and cooperate with them on how to teach throughout their Teaching Practice (TP) exercise. Mentors support student teachers in terms of buddy support, technical advice and classroom management tips in order to improve their teaching profession. Apart from being mentored, student teachers are also assessed by their supervisor during teaching practice to see the extent to which they can link theory learnt in the college and practice in the classroom.

Mentoring During Teaching Practice: Mentoring is the process where more experienced teachers support novice teachers in terms of buddy support, technical advice, and classroom management tips in order to improve their teaching profession (Athanases & Achinstein, 2003). The main objective of mentoring is both a professional development and a personal support from their mentors which requires openness and confidentiality (Lindgren, 2005). For teaching practice to be effective each student teacher must be assigned to a qualified and experienced subject or classroom teacher during teaching practice to guide and supervise them in the whole period of TP (Holloway, 2001) In line with this idea, Kiggundu and Nayimuli (2009) conducted a study in Vaal University of Technology in South Africa and revealed that the overall impression of the mentors given to the student teachers was fairly positive. This response indicated that mentors in different countries are well done in a supportive way. They said that the mentors gave the student teachers valuable advice and shared their skills and experiences that helped the student teachers to gain more skills and experience in the process of teaching for example the preparation of

lesson plan. These implied that the student teachers became motivated to take up the teaching profession after teaching practice because of the constant guidance they received from their mentors. This shows how the mentorship is important to the prospective science and mathematics students during teaching practice exercise. The study conducted by Maphosa, Shumba & Shumba (2007) in Zimbabwe revealed that student teachers appreciated mentors who treated them with respect and made teaching practice to be useful as the teaching practice with mentors gave student teachers hands-on experience in schools and it helped them to make the decision to become teachers.

Notwithstanding positive responses from mentors, some negative aspects about mentors during teaching practice exercise are also revealed from different scholars. The study conducted by Kyriacou and Stephens (2010) in Canada revealed that experienced teachers were leaving all the work to the prospective teachers and run away when they arrived at their schools, hence the student teachers failed to cope with the heavy workload. These also evidenced by Kiggundu and Nayimuli (2009) in South Africa who observed that some of the respondents did not get any support from the school based mentors and some of respondents saw it as exploitation and abuse by the mentors who imposed exorbitant demands on prospective teachers in terms of workload.

Moreover, Kyriacou and Stephens (2010) revealed that some experienced teachers did not regard the student teacher as 'teachers' when teaching in the classroom as they were given an incidental role in the classroom by experienced teachers, example helping individual pupils during lessons while the experienced teacher takes the lead, hence the student teachers



were perceived as helpers in the class and not teachers. Apart from that the study conducted by Maphosa, Shumba and Shumba (2007) on teaching practice in Zimbabwe some mentors were observed exhibiting unprofessional conduct and engaging in unprofessional acts, for instance absenting themselves from duty, reporting late or sending pupils on personal errands even during class hours. Such unprofessional behaviour is contrary to the role of mentors. In this case mentors should be informed and insisted on their professional roles to the student teachers that is to guide them from the first day to the last day as they have gone there to learn. More than that, the study conducted by Ranjan (2013) in India revealed that the student teachers were not introduced to other members of staff which made them feel a sense of alienation and they were not respected as their fellows or experienced teachers rather than being treated as student teachers like proxy teachers. Lastly, the study conducted in Southern highland of Tanzania by Njiku (2016) revealed that during TP the host teachers felt inferior and left all activities to student teachers, on top of that they used quiet different offices or given the isolated offices different from the common one used by host teachers things which showed that there were no close interactions with the student teachers. The author also reported that only few student teachers which were about 31.6% got assistance from mentors to prepare lesson plans and schemes of work in the first day of their teaching practice.

Supervision during teaching practices: Supervision is the process of assessing student teachers during teaching practice, thus assessment in the teaching practice is the diagnosis of teaching and learning process and monitoring progress of the student teachers, grading students, predicting future achievements and motivating students (Chase, 1999). During teaching practice exercise the student teachers are assessed so as to realize their strengths and weaknesses, and through feedback given by their supervisors on what went on in the classroom, they may improve and develop more skills. This exercise is very important in helping prospective teachers to make self-evaluation by checking the methods and strategies used and trying to suggest some ways to be employed in order to reduce shortfalls, as the assessment is an integral and prominent component of the entire teaching and learning process (McInnis & Devlin, 2002). Also supervision exercise helps prospective teachers to make reflections after teaching hence can be able to refine their skills. Feedback from the practicing school, administration, supervisors and prospective teachers must be taken seriously, so that the teaching practice exercise can play an effective role to develop confidence, vision and competency in the prospective teachers teaching profession (Komba & Nkumbi, 2008).

However, in a study which was conducted by Kiggundu and Nayimuli (2009) in South Africa on teaching practice it was revealed that most of the supervisors were not assessing

the student teachers according to specific guidelines given to them by the training institution. Also there were no discussions provided to some of the prospective teachers after assessment. In a study which was conducted by Kirbulut, Boz and Katucu (2012) in Scotland on teaching practice revealed that there were no feedback given after the classroom sessions, instead the supervisors will say the teaching was fine even if it was not fine. In Pakistan Gujjar, Naoreen, Saifi & Bajwa (2010) argued that during teaching practices most of the supervisors had different orientations on assessment which brings confusion among student teachers. For example, the right time to use teaching aids and how to evaluate students after teaching. Also the study conducted by Kiggundu (2007) in South Africa observed that some supervisors assume that students are already equipped with the necessary knowledge and skills required to teach and therefore are reluctant to assist them with the development of basic skills. Inadequacy in supervisor guidance and training may result in ineffective use of practical teaching and negative experience to teaching profession.

Moreover, in a study by Oppong (2013) in Ghana on supervisors' remarks in teaching practice, it was revealed that supervisors do not have sound knowledge of the subject matter, this means that some supervisors assess the subjects which are not of their expertise hence they lack knowledge of the specific subject methodology through which they cannot give out useful remarks during assessment. For example, when the Kiswahili language teacher assesses the student teacher teaching mathematics in the classroom or conducting a science practical in the laboratory, then the assessor will end up with the general principles of teaching and fail to judge the subject matter knowledge accordingly. This type of assessment will not favour the student teachers, as the supervisor cannot assess the subject matter knowledge and its actual methodology used so as to correct them which will lead to the improvement in teaching.

In Tanzania, the study conducted by Komba and Kira (2013) on teaching practice in Tanzanian schools revealed that the role of supervisors was ineffective as most of the them were not flexible to guide, advise and discuss with the student teachers their strengths and weaknesses revealed during teaching. This is due to insufficient allowances to accommodate them following the large number of students and few days given to conduct assessment due to shortage of funds. The study conducted by Mahende and Mabula (2014) in Tanzania revealed that some supervisors there were no discussions before and/or after the classroom teaching, the student teachers had to learn on their own from the written comments in their assessment forms. Hence, the student teachers lack immediate and constructive feedback from supervisors as the supervision role has to serve as a catalyst to the science and mathematics student teachers' process of learning to teach. Lastly, the study



conducted by Njiku (2016) in Tanzania revealed during teaching practice exercise in the southern highland of Tanzania, there were major variations in writing specific objectives, assessment activities and remarks among the student teachers.

Different scholars have tried to give out how mentorship and supervision help prospective science and mathematics teachers to improve their teaching professions during teaching practice exercised if it is applied as it is required, this is by providing guidance and constructive feedback to the prospective teachers. However, many challenges have been revealed by different scholars on mentoring and supervision areas which made the prospective science and mathematics teachers to be ineffective in their teaching profession during teaching practice exercise.

These raised doubt to whether the mentoring and supervision achieve its efficacy to prospective science and mathematics teachers during teaching practice exercise in school which is to improve their teaching profession. Studies have been conducted in different countries including Tanzania on teaching practice exercise in general to investigate other parameters. There is no study conducted so far specifically to investigate the efficacy of mentoring and supervision toward improving teaching profession of the prospective science and mathematics teachers during teaching practice exercise in Tanzania secondary schools. This study aimed to fill the gap

### General and Specific Objectives

The general purpose of this study was to investigate the efficacy of mentoring and supervision during teaching practice exercise. Specifically the study intended to investigate the efficacy of mentoring and supervision toward improving teaching profession of the prospective science and mathematics teachers during teaching practice exercise in schools. The specific objective followed by the key research questions which were; To what extent do mentoring help prospective science and mathematics teachers to improve teaching profession during teaching practice exercise?; To what extent do supervision help prospective science and mathematics teachers to improve their teaching profession during teaching practice exercise?

### Methodology

Study Area: This study was conducted at Morogoro Teachers' college, Lupanga practicing school and Morogoro secondary school. Morogoro Teachers' college was obtained through simple random sampling and Lupanga and Morogoro secondary schools were obtained through purposively sampling since were the schools with large number of teachers. Eight science and mathematics college tutors, two heads of secondary schools, four heads of science and mathematics department in secondary schools and twenty four science and mathematics student teachers were purposively selected.

Research Design and Data Collection: The study employed a qualitative research approach where a case study research design was used. Qualitative data were collected by using observation, key informant interviews and focus group discussions.

### Data Analysis

Content analysis was used to analyse data which were obtained through observation, interviews and focus group discussion. In depth descriptions of specific themes based on research objectives and their related questions were provided as most of the data were in form of words.

### Results and Discussions

Mentoring During Teaching Practice: During teaching practice exercise in the practicing schools, the student teachers have to be guided on how to teach by the host teachers (mentors) as mentors are full and experienced teachers. In this part the researcher investigated how the prospective science and mathematics teachers were mentored during teaching practice sessions in secondary schools toward improving their teaching profession

During observation of the teaching practice sessions in practicing schools by researcher, the researcher come into contact with poor and minimal of mentoring to the student teachers. When observed students interviewed on why there was minimal and poor mentoring, one of the biology student teacher responded that:

*"...the heads of departments are very busy with their own preoccupations and sometimes are not available, and they treated us as qualified teacher that is why they are not with us in the classrooms..."*

During interviews with the heads of departments in the secondary schools, one of the head responded that:

*"...my teachers provide mentoring to the student teachers if they want or ask for any assistance; otherwise they are left on their own to continue their TP..."*

During the interviews with the heads of schools, one of the head argued that:

*"...our school teachers provide mentorship if the student teachers need them, because they are at school and very few teachers provide mentoring although we insist all teachers to cooperate with students teachers when they come..."*

The responses are also supported by the focus group discussions where one student teacher explained that;

*"...only few teachers provide mentorship to students, others hand all activities to student teachers and run away. Also in some schools few student teachers get mentors as other schools have no science and mathematics teachers at all when we go for teaching practice hence no assistance in the difficult topics"*

All quotes imply that mentoring were minimal provided or very poorly conducted during teaching practice sessions in



secondary schools as other prospective teachers did not received any help from mentors to shape their teaching profession. These findings are in line with the findings of Kyriacou and Stephens (2010) in Canada, Kiggundu and Nayimuli (2009) in South Africa and Njiku (2016) in Tanzania who revealed that experienced teachers were leaving all the work to the student teachers, hence the student teachers failed to cope with the heavy workload. Also the student teachers did not get any support from the school based mentors and some of the student teachers saw it as exploitation and abuse by the mentors who imposed exorbitant demands on student teachers in terms of workload.

Supervision during Teaching Practice exercise: During teaching practice exercise the student teachers have to be assessed by their tutors (supervisors) in order to realize their strengths and weaknesses through the feedback given by their supervisors on what went on in the classroom during the teaching process in their classrooms. In this part the researcher investigated on how the student teachers were assessed during teaching practice toward improving their teaching profession.

During teaching practice sessions the researcher observed two assessments of the student teachers, the first one involving the 'table assessment' as the student teachers were invigilating midterm test and the second was in the classroom. Table assessment is the assessment which is done by looking at the scheme of work and lesson plan of the student teachers or any other prepared teaching and learning resources and marks are awarded to the student teacher without actual teaching in the classroom.

The first assessment which was a 'table assessment' was not helpful to the student teachers as it was just the review of lesson plans and scheme of works. In this case the supervisors did not observe some important skills in the classroom such as mastery of subject matter, teaching methods, classroom management and other skills which would have been useful for the student teachers to get feedback on them.

The comments from the supervisors were written in an assessment form such a way as if they entered in the classroom and observed the student teacher teaching. Such comments explained that the student teacher did well in all areas including mastering of subject matter, appropriate use of teaching methods, very creative in using teaching and learning aids, quality and quantities of learners activities as well as high ability to manage classroom, to mention few. This kind of supervision is very bad as it kills the student teachers' initiatives following the good comments given while it was not true in the reality. Student teachers should be given a real feedback from real observations which would improve their teaching skills in the teaching profession. Hence, this type of supervision which is table assessment should be prohibited and the real supervision in the

classroom should be promoted so as to observe different teaching skills of the student teachers.

The second assessment was done one day after the opening of the school as both students and student teachers were earlier on midterm break. The exercise was also less helpful to the student teachers as there were no any proper preparation since they had just come from holidays. Supervisors took 15-25 minutes out 80 minutes in the classroom due to a large number of student teachers who needed to be assessed per day. The process pushed the supervisors to the wall, and they managed time by observing some important skills the student teachers had in very few minutes and left the classrooms. The feedback was then given in groups for most student teachers and sometimes individually and it took mostly 5-10 minutes depending on someone's comments. No discussion was made before the teaching.

The findings from the observations were also supported by tutors' interviews and focus group discussions where six tutors out of eight viewed that the number of days given for student teachers' assessment were not enough as there were so many student teachers to be assessed, that is why they assessed them using 10-15 minutes so as to finish the exercise but rarely giving valuable feedback. The other two argued that due to the limited funds they just assessed in a hurry with no time to give overall feedback whether before or after the assessment other than students finding it in their assessment form and their lesson plans. Also all interviewed tutors revealed that no overall feedback was given to the student teachers after coming back to the college due to the fixed timetable and also there was no such plan given by the college management.

During focus group discussions student teachers argued that the tutors assessed them in classroom in a range of 10-15 minutes while others did not enter the classrooms as they just took their lesson plans and schemes of work, flipped through them and concluded were enough. They also argued when they got variations in assessments from different supervisors they got confused due to the contradictions of the supervisors especially in the area of stating specific objectives.

For example the researcher observed a lesson plan prepared by one biology student teacher where the first supervisor found the student teacher had written the specific objective that "By the end of 40 minutes every student should be able to define the term neurone and describe the structure of neurone i.e. sensory neuron", and complained that the word 'should be able' was not correct and instead the student teacher was instructed to use 'is expected to'. Then the student teachers changed and start to use "is expected to". During the second assessment a different supervisor came and crossed the word 'is expected to' and indicated that the



correct one was 'should be able to'. These make the student teachers to be confused as tutors themselves do not talk the same language on the same thing. The researcher argued that the word 'should be able to' be considered more correct because each student has to achieve the specific objective by the end of the 40 minutes through the guidance of the teacher.

During interviews with the heads of departments on whether they assessed student teachers who came in their departments before the supervisors visited them they revealed that they did not do so as they were not informed whether they were also allowed to supervise the student teachers as one of their responsibilities. These findings imply that during teaching practice the student teachers got the type of assessment which couldn't improve their teaching profession following the poor assessment strategies done by their supervisors and the heads of subject departments in the practicing schools. These findings are in line with the findings of Kiggundu and Nayimuli (2009) in South Africa and Kirbulut, Boz and Katucu (2012) in Scotland who revealed that during TP there were no discussions provided to some of the student teachers after assessment instead of saying it was fine even if it was not fine. Also the findings are in line with the findings of Mahende and Mabula (2014) in Tanzania who argued that some supervisors were not discussing with student teachers before and/or after the classroom teaching, the student teachers had to learn on their own from the written comments in their assessment forms.

### Conclusion and Recommendations

The findings of this study revealed that the efficacy of mentoring and supervision to prospective science and mathematics teachers was not achieved to improve teaching profession of the student teachers during teaching practice exercise. This is because during teaching practice, the mentoring provided to prospective science and mathematics teachers by host teachers were minimal and poor for a student to improve his or her teaching profession as well as improper assessments conducted by supervisors, for example table assessment, short duration of time in class, contradiction among supervisors themselves in stating specific objectives as well as failure of to give constructive feedback to the prospective teachers.

The researcher recommended that there is a need of raising awareness to the host teachers in practicing schools so that they can understand that mentoring to prospective teachers are part and parcel of their responsibility during teaching practice. Also teachers colleges and tutors should review the assessment part either by increasing resources so as to get enough days to be in the field to assess student teachers and also to plan the time in which students will be in the classroom so as to avoid the table assessment that is the review of lesson plans and schemes of work only leaving the real classroom implementations.

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