

ASSESSMENT OF TEACHER COMPETENCE IN PEDAGOGICAL KNOWLEDGE IN THE IMPLEMENTATION OF SECONDARY SCHOOL CURRICULUM IN NORTH RIFT REGION, KENYA

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ABSTRACT: *The purpose of this study was to investigate teachers' competence in pedagogical knowledge in teaching in secondary schools in the north rift region of Kenya. The study used descriptive survey design and a mixed methods research. Simple random sampling and stratified sampling was used to select the sample. Data instruments were structured and unstructured questionnaires, observation schedule and semi-structured interviews. Data was analyzed using descriptive statistics. The findings of the study revealed that a majority of teachers did not use learner centred methods for example demonstration, enquiry and discussion. It was concluded that a significant number of teachers were not competent in pedagogical knowledge for the implementation of the secondary school curriculum. The study recommended revision of teacher education curriculum and the recruitment of more teachers to relieve on workload to enable them prepare effectively for the implementation of the secondary school curriculum.*

KEYWORDS: Teacher Competence, Pedagogy, Curriculum, Education, Kenya

INTRODUCTION

The nature and the quality of teacher education has been the subject of much concern in many countries around the world. Darling-Hammond (2006) claimed that public dissatisfaction with schools has included dissatisfaction with teacher education. Today's classrooms have a need for learner centred methods of teaching, which promote imaginative, critical and creative skills in the learners. Despite these objectives, many Universities conduct curriculum development without the involvement of schools and hence, the relevance of education and training they offer may not meet the needs of the labour market (MOE, 2012). The emerging issues facing teacher education mean that many traditional ways of delivering knowledge, skills and values are becoming less relevant. Simwa & Modiba (2015) posited that training of teachers plays an important role in the effective implementation of the curriculum.

Today's teachers will have to teach all students including those from increasingly diverse economic, racial, linguistic, and academic backgrounds to the same high learning outcomes to help the nation compete in the global economy (The National Council for Accreditation of Teacher Education [NCATE], 2010). Teacher's qualification, knowledge and skills make significant difference in students learning than any other factor (Darling-Hammond 2005). This means if one wants to improve student learning one has to invest in the teachers' training. These realities have a profound impact on the classroom and demand Programmes that prepare teachers with the capacity to meet them.

Currently, there is emphasis on more participatory methods of teaching and learning as opposed to theoretical (chalk and board) teaching while emphasizing mainly on cognitive skills (Ministry of Education [MoE], 2012). The teachers are therefore expected to be innovative and creative throughout their teaching career in order to enhance and implement these methods. However it has been found that teachers mainly use the lecture method and spend much time on dictating notes to the learners in the same way their lecturers emphasized on transmitting factual knowledge (Wafula, 2012). A study by Hans and Akhter (2013) found out that students learn and copy the same content and methodologies that their teachers have taught hence significant effects on what students learn. Healey (2010) concludes that learning and teaching should be holistic in order to reflect the real world which is interactive.

In the United States, Darling-Hammond, Holtzman, Gatlin and Heilig (2005) highlighted how strong teacher preparation Programmes and certified teachers do produce higher student achievement. The study examined teacher impact on student achievement in a large school system which included an examination of the effect of certification/licensure status and whether Teacher for America (TFA) candidates, recruits from highly selective universities who receive a few weeks of training before teaching, were as effective as similarly experienced certified teachers. The results found that certified teachers consistently produced significantly stronger student achievement gains than uncertified teachers, including TFA recruits. The researchers concluded that teachers' effectiveness is strongly related to the preparation they received for teaching. This study sought to investigate teachers' competence in the implementation of the secondary school curriculum in North Rift Region of Kenya.

A study by Okanlawon (2014) investigating the teaching competencies acquired by science teachers-in-training after exposure to teaching practice in Nigeria found out that teachers-in-training considered themselves to be incompetent regarding planning instruction, implementing instruction, evaluating instruction, and integrating technology into instruction. The findings concluded that teacher training Programmes should be reviewed and emphasis placed on those competencies (instructional planning) that have not been acquired. A study has not been carried out in Kenya regarding planning instruction, implementing instruction, evaluating instruction, and integrating technology into instruction. This study therefore showed a gap of information in the implementation of learner centered methods of teaching in secondary schools in Kenya.

Also, Paulo (2014) investigated pre-service teachers' preparedness to implement competence based curriculum for secondary schools in Tanzania. The findings showed that although pre-service were aware of the teaching and assessment methods stipulated to be used for the implementation of competence based curriculum they were not adopting the envisaged methods in their classroom practices. Pre-service teachers had continued to use traditional teacher centred teaching methods along with paper and pencil forms of assessments despite the fact that the newly adopted curriculum demands changes. This study sought to investigate teachers' implementation of learner centered methods in secondary schools in Kenya.

Simwa and Modiba (2015), examined how the content of a History and Government (H&G) methods course, taught in a university in Kenya, influenced student teachers' lesson planning and pedagogical skills. They examined a lecture on a lesson plan, micro-teaching, lesson plan documents and presentations to determine student teachers' preparedness for teaching the History and Government (H&G) secondary school curriculum in Kenya. The findings demonstrated that focusing on parts of a lesson in lesson planning in the lecture may have

derailed student teachers from developing the pedagogical content knowledge that is likely to enable them develop competences that are expected for teaching H&G. This study therefore focused on investigating teachers' ability in the use of learner centred methods during teaching in secondary schools in Kenya. This was to fill in the gaps that were revealed by the studies above.

The Decade of Education for Sustainable Development (DESD) aims to integrate values, activities and principles that are inherently linked to sustainable development into all forms of education and learning. Globally, there are significant efforts to close the three missing links, which are key to leveraging science, technology and innovation for national development. These include; the need to establish a culture that respects knowledge, the need to focus on active knowledge creation, acquisition, deliberate and conscious effort to link knowledge creation to actual opportunities aimed at enhancing productivity and creating employment opportunities (MOE, 2012). Throughout the world, studies have been carried out on teacher training and the implementation of learner centered pedagogy in secondary schools. However the researcher identified a gap in knowledge on teacher competence for the implementation of the secondary school curriculum in Kenya.

Objectives of the study:

- i) To find out the methods teachers prefer during teaching in secondary schools in Kenya.
- ii) To establish teachers perception on pre-service training on pedagogical methods.
- iii) To establish the frequency with which teachers used various pedagogical techniques in teaching.

Theoretical Framework

The theoretical framework of the study was based on Vygotsky's concept of Zone of Proximal Development (ZPD), where the zone is meant to focus attention on the relation between instruction and development (Vygotsky, 1978). Vygotsky suggested that knowledge is constructed in the midst of our interactions with others and is shaped by the skills and abilities valued in a particular culture. This type of theory places the teacher in an active role while the students' mental abilities develop naturally through various paths of discovery. He argued that language is the main tool that promotes thinking, develops reasoning, and supports cultural activities like reading and writing, Christmas, *et al.*, (2013).

Scaffolding is another fundamental concept of the ZPD theory which is used to explain the social and participatory nature of teaching and learning. Educationally, scaffolding is an instructional structure whereby the teacher models the desired learning strategy or task, then gradually shifts responsibility to the learner, Christmas, *et al.*, (2013). The teacher is therefore essential during the learning process since individual development takes place in the context of activities modelled or assisted by this more skilled person. The "zone of proximal development" (ZPD) helps the teacher identify where the learner needs assistance. This will guide the teacher on the right pedagogical methods.

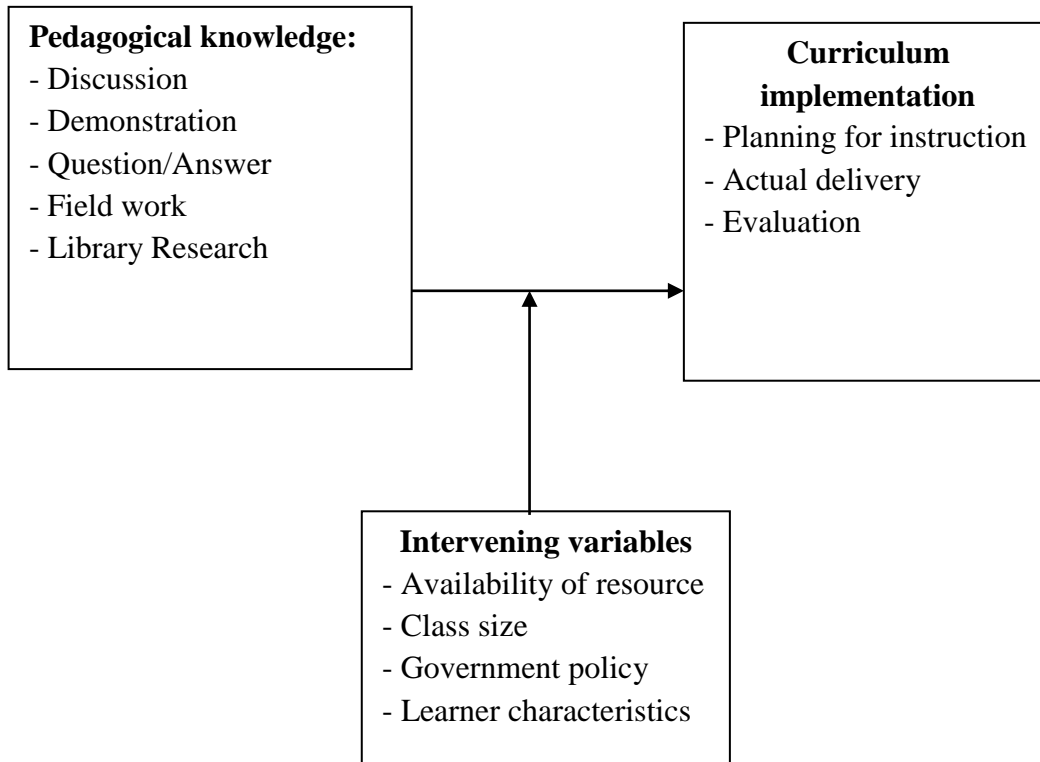
In this study, Vygotsys theory guides the teachers to make learning experiences meaningful and relevant to the learner's life hence the development and growth of the learner as a whole

person. Learners' interest should be given priority in the learning process in order to enhance learning and enable the learner acquire skills for the 21st c and world outside school.

Fig 1: Conceptual Framework

Independent variables

Dependent variables



Source: Researcher, 2017)

REVIEW OF RELATED LITERATURE

Teacher's Competence in Pedagogical Knowledge in Teaching in Secondary Schools

Educational competence relates to individual teachers ability in terms of their success in achieving particular goals or educational outcomes (Ko, 2013). Activities that occur during teacher development are influential in developing teachers' knowledge and instructional skills. According to NCATE (2010), expert practitioners need to study content and pedagogy, concepts of learning and child development to know the waters they will navigate. The basic vision of the Decade of Education for Sustainable Development DESD is using education - formal, non-formal and informal - as an effective vector to bring about change in values, attitudes and lifestyles to ensure a sustainable future and the evolution of just societies (UNESCO, 2007). Among the essential characteristics of education for sustainable development include uses a variety of pedagogical techniques that promote participatory

learning and higher-order thinking skills (UNESCO, 2007). To achieve these results, DESD strives to foster an increased quality of teaching and learning in education for sustainable development.

Among the challenges facing adoption of learner-centered pedagogy listed by Vavrus *et al.*, (2011), are lack of high-quality initial training, which make teachers largely teach the way they were taught. Vavrus also notes that, with a few exceptions, teacher education Programmes in Sub-Saharan Africa utilize the technical rationality model transmitting knowledge about the content of their subject and the 'correct' ways for teaching it to student teachers; Secondly, tutors are often not specifically trained as teacher educators since it is assumed that anyone graduating in education would be capable of teaching at a college; Thirdly, Teacher Training Colleges (TTCs) are not held accountable to primary and secondary schools and even at times to the Ministry of Education. These disconnections too often lead to poor preparation of teachers at Teacher Education Institutions.

In 2004, South Africa's Outcomes Based Education reform linked a competency model with Learner centred approaches (Chisholm & Leyendecker, 2008; Jansen, 2004). In the same year, Mozambique's new curriculum for basic education emphasized Learner Centred Pedagogy (Guro & Weber, 2010). However, various descriptions of curricula and pedagogy on the continent reveal the prevalence of transmission pedagogy with lecturing and drilling being common teaching methods in schools (Vavrus *et al.*, 2011). This continued reliance on teacher-centered approaches could be explained by the limited reforms of teacher education Programmes across Sub Saharan Africa.

Globally, there are significant efforts to close the three missing links, which are key to leveraging science, technology and innovation for national development (MOE, 2012). These include; the need to establish a culture that respects knowledge; active knowledge creation and acquisition and a deliberate and conscious effort to link knowledge creation to actual opportunities (MOE, 2012). Learners therefore need to be trained to acquire these skills right from the secondary school level. For this training to be successful, the teachers also need to be competent in the implementation of this new curriculum.

In the United States, Darling-Hammond, Holtzman, Gatlin and Heilig (2005) highlighted how strong teacher preparation Programmes and certified teachers do produce higher student achievement. The study examined teacher impact on student achievement in a large school system which included an examination of the effect of certification/licensure status and whether Teacher for America (TFA) candidates, recruits from highly selective universities who receive a few weeks of training before teaching, were as effective as similarly experienced certified teachers. The results found that certified teachers consistently produced significantly stronger student achievement gains than uncertified teachers, including TFA recruits. The research also found that uncertified TFA recruits were less effective than certified teachers. The researchers concluded that teachers' effectiveness is strongly related to the preparation they received for teaching. Teacher preparation programmes should therefore consider quality of training to ensure effective teaching in the secondary schools.

In addition Ede and Celia (2006) observe that though there was abundant justification for the inquiry teaching of social studies in Nigerian secondary schools, the competencies of the teachers to employ this instructional mode was doubtful. They sampled 100 professionally

trained social studies teachers from secondary schools in South Central Nigeria for observation in an instructional setting. They found that the overall inquiry-teaching competence of the teachers was significantly below the acceptable level. It was also found that trained non-graduate teachers proved to be more competent in the inquiry teaching of Social Studies than the trained graduate teachers. The study in the Nigerian schools showed a gap on information on the use of learner centered methods as a whole during teaching in secondary schools which this study sought to find out.

A study by Okanlawon (2014) investigating the teaching competencies acquired by science teachers-in-training after exposure to teaching practice in Nigeria found out that teachers-in-training considered themselves to be incompetent regarding planning instruction, implementing instruction, evaluating instruction, and integrating technology into instruction. The findings concluded that teacher training Programmes should be reviewed and emphasis placed on those competencies (instructional planning) that have not been acquired. A study has not been carried out in Kenya regarding planning, implementing, evaluating and integrating technology into instruction. This study therefore showed a gap of information in the implementation of learner centered methods of teaching in secondary schools in Kenya.

Paulo (2014) investigated pre-service teachers' preparedness to implement competence based curriculum for secondary schools in Tanzania. It involved sixteen purposively selected pre-service teachers trained at the University of Dar es Salaam. Paulos' findings showed that although pre-service teachers were aware of the teaching and assessment methods stipulated to be used for the implementation of competence based curriculum, they were not practicing the envisaged methods in the classroom. Pre-service teachers used traditional teacher centred teaching methods along with paper and pencil forms of assessments despite the fact that the newly adopted curriculum demanded changes.

Simwa and Modiba (2015), examined how the content of a History and Government (H&G) methods course, taught in a university in Kenya, influenced student teachers' lesson planning and pedagogical skills. They examined a lecture on a lesson plan, micro-teaching, lesson plan documents and presentations to determine student teachers' preparedness for teaching the History and Government (H&G) secondary school curriculum in Kenya. A case study which involved lesson observations, interviews and document analysis was carried out. Findings demonstrated that focusing on parts of a lesson in lesson planning in the lecture may have derailed student teachers from developing the pedagogical content knowledge that is likely to enable them develop competences that are expected for teaching H&G. This study therefore focused on investigating teachers' ability in the use of learner centred methods during teaching in secondary schools in Kenya. This was to fill in the gaps that were revealed by the studies above.

RESEARCH METHODOLOGY

Research Design

The descriptive survey design was adopted in which data was collected at a single point in time. The research design enabled the researcher to yield maximum information and provided an opportunity for considering many different aspects of the problem. The research design also helped to minimize bias and maximise the reliability of data collected. A survey

was chosen because the breadth of coverage of teachers and schools was massive and therefore it could produce a large amount of data in a short time for a fairly low cost. The researcher was also able to set a definite time-span for the study which assisted in planning and delivering the end results. Finally, a survey was chosen because the design was well suited for descriptive data which the researcher intended to collect on teacher competence for the implementation of the secondary school curriculum in the North Rift region of Kenya.

Research Method

Mixed methods approach was used in this study. Qualitative and quantitative data was collected through a combination of open-ended and closed-ended questions, structured and unstructured interviews and observation.

Philosophical Paradigm

The pragmatist approach was used to guide the study. Pragmatist researchers favour working with both quantitative and qualitative data because it enables them to better understand social reality.

Target Population

The target population was 5077 trained secondary school teachers, 581 secondary schools and 581 Secondary School Principals.

Table 1 Population Sample

Counties	Schools	Teachers	Principals	CQUASOs
Uasin Gishu	6	60	6	1
Nandi	6	60	6	1
Elgeiyo Marakwet	6	59	6	1
Baringo	6	59	6	1
Trans Nzoia	6	60	6	1
West Pokot	6	59	6	1
Totals	48	357	48	6

3.5 Sample Size and Sampling Techniques

A sample size of 357 (7%) of 5077 secondary school teachers in the North Rift region of Kenya was taken. The scheme of determining sample size by Krejcie and Morgan, (1970) was adopted and yielded the samples as indicated in Table 2

Table 2 Sample items, sample size and sampling techniques

Sample Items	Sample	Sampling Technique
Schools	48	Simple random sampling
Teachers	357	Stratified sampling, Simple random sampling and Purposive sampling.
Principals	48	Purposive sampling
CQUASOs	6	Purposive sampling

Data Collection Instruments

Data collection instruments included structured questionnaires for the teachers, interview schedule for the principals and CQUASOs and an observation schedule. Self-designed structured questionnaires were used to ensure that all the teachers responded to the same set of questions. The questionnaire was based on open and closed ended questions which elicited rich information that might not have been captured with other instruments.

A structured interview was carried out for the principals and CQUASOs. The researcher employed a more personal interactive mode of data collection such as the face to face interview and probes. Interview schedules were arranged prior to meeting the respondents to ensure they were present. An informal strategy was preferred since it created a more complete and spontaneous response from the interviewee.

Teachers were observed in the classrooms which were purposively chosen from the various academic departments in the school and from those teachers who were trained. Ten schools were randomly selected from across the counties for observation and in each school two teachers were observed. The teachers were purposively selected according to their teaching subjects. The researcher decided in advance the behaviours to be recorded and the observation time frame. To record frequency of an observed technique, the researcher used a rating scale of 1-5. The purpose of the observation was to further examine what methods and/or implementation of learner centred pedagogy. This enabled the researcher to cross-check the information given through the questionnaire on availability and use of learner centred teaching methods.

FINDINGS AND DISCUSSION

The study sought to establish teacher competence in pedagogical methods in subject areas. To capture teachers' competence in pedagogical methods, the researcher measured the following constructs: the methods teachers prefer during teaching; the pre-service training preparation on pedagogical methods; the frequency with which teacher employed various pedagogical techniques in teaching, and teachers' perception on quality of instruction during training.

Teaching Methods teachers' Prefer Using in Subject Area

The researcher sought to establish teaching methods teachers prefer using in their subject area as illustrated in Table 3.

Table 3 Teachers Responses on the Methods Preferred in teaching Subject Area

Teaching Methods	Preferred		Not Preferred		Total F.
	F	%	F	%	
Discussion	218	62.1%	133	37.9%	351(100%)
Lecture	73	20.8%	278	79.2%	351(100%)
Question and Answer	182	51.9%	169	48.1%	351(100%)
Explanation	63	17.9%	288	82.1%	351(100%)
Giving Assignment	81	23.1%	270	76.9%	351(100%)
Demonstration	121	34.5%	230	65.5%	351(100%)
Library Research	50	14.2%	301	85.8%	351(100%)
Fieldwork	62	17.7%	289	82.3%	351(100%)
Total	706	30.3%	1400	69.7%	

The study shows that a majority of the respondents used discussion and question and answer methods compared to library research, fieldwork, and explanation and lecture methods. This could imply that the teachers were competent in using these pedagogical methods in the secondary schools in Kenya. However, the observation schedule found out that a majority of teachers used lecture, question answer and discussion methods. Role play, library research, demonstration, field work and assignment were rarely used by the teachers that were observed. This finding concurs with what teachers revealed in the questionnaire. Furthermore the interview with the principals and CQUASOs revealed that a majority of them did not have strategies to strengthen learner centred methods of teaching in schools. From the principals opinions on teachers' competence on learner centred methods of teaching, a majority of them said the teachers were competent. However, they listed a number of factors that influence teachers' use of various methods of teaching which included: Inadequate time, lack of teaching and learning resources, wide curriculum, pressure to perform in examinations and lack of electricity.

Lee Vygotsky (1978) asserts that learners have individual zones of proximal development. According to Christmas (2013), teaching each learner according to his/her ZPD, has two major advantages: the tasks are made simpler for the learner and the learner's intellectual ability to deal with the task is considered. Vygotsky also suggests, scaffolding where a child who cannot successfully function alone is supported. Giving the learner an opportunity to experience various learning styles enables them to learn adequately. If the teachers do not employ learner centred methods of teaching, it could mean that they are not adequately prepared for the emerging issues of learner centred methodology and the 21st century skills.

Pre-Service Teacher Education and Pedagogical Methods in Subject Area

From the study, a majority of the respondents noted that the pre-service teacher education course prepared them well in learner centered pedagogy. This finding implies that despite pre-service teachers' awareness of the teaching methods prescribed for the implementation of the curriculum a majority of them were not able to adopt the learner-centered teaching methods. Hence they were implementing the curriculum using the conventional teacher-centered methods.

The findings from the questionnaires were also echoed by the principals and CQUASOs in the response to the interview questions. Training helps teachers to be well versed in subject matter and create an understanding on how to incorporate instructional strategies into instruction. However from observation and the methods teachers preferred to use in class, a majority of teachers were not adopting the necessary teaching strategies in class. Pedagogical competence means a teachers ability to manage learning and having command of subject matter. Managing learning is experimenting all teaching and learning strategies. Lack of adoption of all the teaching and learning strategies and techniques implies that teachers may not be competent in using pedagogical methods. The study results coincides with Paulo (2014) research conducted in Tanzania where interview responses showed that pre-service teachers named group discussion, questions and answers and lecture as the teaching methods they most frequently used while the use of a guest speaker, study visits and practical work were least used methods.

Instructional strategies that promote learners' collaborative learning help learners perform better. According to Vygotsky (1978), in Christmas, (2013), knowledge construction occurs within social context that involves student-student and expert-student collaboration on real world problems. The teacher's work is to assess the student's understanding to locate the point where the learner needs assistance. The teacher therefore provides that assistance by modelling or demonstrating, asking questions or coaching, by creating a group work, or by providing readings or hands-on materials that support the next stage of learning. According to the findings, techniques like team teaching, giving individual attention to learners, field trips and providing for a variety of learning experiences were not very popular. Teachers need to learn how to engage students in independent learning, to act as mediators of learning, to teach heuristics, to provide scaffolding and connect students to the milieu of knowledge available in texts, various other sources and the World Wide Web, and to engage in co-learning with their students (Menter, 2010). Teachers and students need to work together in "joint productive activity," which means teachers share decisions about the selection of topics, as well as responsibilities on how to learn. This kind of collaboration requires dialogue, negotiation, and compromise.

Team teaching enables the learners to get a variety of learning experiences from different teachers. Akpan (2010) stated that team teaching is used in increasing the students' level of understanding and retention, in addition to enabling the students to obtain higher achievement. As a result of the team teaching, the students receive more individualized attention from more experienced teachers hence harnessing of benefits of co-operation efforts among teachers. A variety of learning experiences and field trips on the other hand enhance understanding, make learning interesting and help the learners develop in knowledge and also help learners develop a sense of responsibility in learning. Lack of variety of teaching and learning styles implies that learners are denied more growth merits and general students' improvement.

Teachers' Perception of Quality of Instruction during Training

The researcher sought to establish Teachers' Perception on Quality of Instruction in training. The following responses were recorded as shown in Table 6:

Table 6: Teachers' Perception on Quality of Instruction in Training Programme

Training component:	Very good		Good		Average		Fair		Poor		Total
	F	%	F	%	F	%	F	%	F	%	
Subjects Content	247	70.4%	86	24.5%	14	4.0%	2	0.6%	2	0.5%	351
Classroom Management	181	51.6%	143	40.7%	19	5.4%	6	1.7%	2	0.6%	351
Making Instructional Materials	116	33.0%	175	49.9%	42	12.0%	16	4.6%	2	0.6%	351
Using Instructional Materials	137	39.0%	149	42.5%	45	12.8%	16	4.6%	4	1.1%	351
Evaluating Instruction	136	38.7%	160	45.6%	37	10.5%	12	3.4%	6	1.7%	351
Total	817	46.6%	713	40.6%	157	8.9%	52	3%	16	0.9%	

The study indicates that the majority (87.2%) of the teachers have a positive perception of quality of instruction in training as the majority of the teachers indicate that the training received was good in all the areas they were responding to. Pedagogical coursework seems to contribute to teacher effectiveness at all levels of education, particularly when coupled with content knowledge. This implies therefore that trained teachers should be able to implement effectively all strategies and techniques of teaching content in the secondary schools. However, 3.9% disputed that the pre service training was fair while 8.9% reported that pre-service training was average which questions the quality of teacher preparations programmes. Research shows that teacher quality is significantly correlated with learners' attainment (European commission, 2007). Thus for effective delivery of instruction there is need for proper training of teachers. Teachers at all levels require effective and sufficient education to be able to adequately carry out their roles and responsibilities in schools.

CONCLUSION AND RECOMMENDATIONS

Conclusions

The purpose of the study was to investigate teacher competence in pedagogical knowledge in secondary schools in Kenya. The objective sought to establish teacher competence in pedagogical knowledge in various teaching subjects in secondary schools in Kenya. From the study, it can be concluded that many teachers are not competent for the implementation of learner centered methods of teaching. Thus, if the learner centered methods are not adequately applied, it means that the secondary school graduates are disadvantaged in their acquisition of skill for the world of work and further learning.

Recommendation

Teacher education curriculum and methods of instruction should be revised, redesigning content and educational core courses so that pedagogical content knowledge is not divorced from subject content knowledge. Teachers should also be adequately trained on how to teach specific subject content for effective implementation in the secondary schools.

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