

Influence of Teacher Attitudinal Factors on Use of Instructional Technology in Schools

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Abstract

Inventions in technology have continued to create a paradigm shift in the methodology of classroom instructional process. The use of instructional technology for teaching and learning in secondary schools performs a vital role in the instructional process in the face of increased student enrolment as a result of subsidized secondary education in Kenya. However, teachers have displayed varying attitudes towards use of the same which in turn affects achievement of learning objectives. This paper explores teacher attitudinal factors and their influence on use of instructional technology in teaching and learning in secondary schools in Vihiga County, Kenya. Data was collected using questionnaires, interview schedules and observation guides. Findings from the study indicate that 65% of the teachers who used instructional technology had positive attitudes while 35% displayed negative attitudes. A correlation of teacher's attitudes with teaching experience, teaching load and availability of equipment showed significant relationships. This also influenced the frequency of using instructional technology in schools. Teachers who use technology during instruction should be motivated to help convince those with negative attitudes to change and incorporate instructional technology in classroom teaching.

Keywords: Attitude, Experience, Load, Frequency, Instructional Technology

Introduction

Instructional technology, which is a sub-set of educational technology, is an integrated process involving people, procedures, ideas, devices and organizations for analyzing problems and devising, implementing, evaluating and managing solutions to these problems in situations in which learning is purposive and controlled (Mukwa, 2015). The most commonly used technology for teaching in Kenya secondary schools is the use of educational broadcasts. These broadcasts entail the use of radio and television which transmits ideas and knowledge through sound and pictures at great distances to a large number of people (Baran: 2001). Radio and television have been used as educational tools since 1920s and 1950s respectively with the first educational radio broadcasting in the United Kingdom (UK) in 1922 with the British Broadcasting Corporation (BBC) while the first experimental use of television as an instructional medium was first reported in 1932 in the United States of America. The

broadcasts have since spread and continue to be used as instructional resources in Asia, Australia and Africa.

The first educational radio broadcast in Kenya began in 1961 under the Voice of Kenya (VOK) with one hour of broadcasting per day (KIE: 1982). Use of television broadcasts was started in 2005 as an improved form of instructional technology (Kimotho: 2009). Radio broadcasts are used live (on-air) or as recorded audio while television uses live or recorded video broadcasts. Knapper (1980) defines attitudes as states of mind that can affect the instructional process. Teachers can display either positive or negative attitudes towards use of instructional technology. Positive attitudes tend to produce higher student motivation leading to improved learner performance. Attitudes are a factor of teacher preparedness and readiness in using the broadcasts. Rotumoi (2006) in a study of use of instructional media resources pointed out that the decision of a teacher to avail and use one media for instruction and not the other might be influenced by attitudes. He further observed that the attitudes held by a teacher would determine the teacher's perception of instructional media resource.

The attitude of a teacher considerably influences the way instructional technology is used in the teaching and learning process. For this reason, the present study examines the influence of teacher attitudinal factors on use of instructional technology for meaningful learning to take place.

Methodology

The area of study was Vihiga County in Western Province, Kenya. Descriptive survey design was adapted for the study. The study population consisted of all the secondary school teachers of English in Vihiga County. The research data was obtained from Head teachers, Heads of Departments in schools and teachers. Simple random sampling was used to select a representative sample of teachers from the sampled schools. This study used three instruments for data collection. These were the interview schedules, questionnaires and observation guides. Frequencies and percentages were obtained. Correlation was done to establish the relationship between factors influencing teacher's attitude and the use of instructional technology.

Results And Discussion

Teachers Attitudes and Teaching Experience

Experience is an important element in a teachers' performance since the years of practice always present one with a variety of experiences on how to use instructional materials in the teaching and learning process. This study sought to find out the teaching experience of teachers of English. Findings indicated that 52% of the teachers had a teaching experience of 0-4 years and this formed the majority, 35% of the teachers had taught between 5-8 years while 9% had an experience of 9-12 years. Only 4% of the teachers had taught for 13 years and above.

The relationship between use of the broadcasts and teaching experience showed a significant Pearson correlation (r) of +0.586 at 0.01 level. This implied that there was a close connection between use of the educational broadcasts and teaching experience of a teacher. The more experience a teacher had, the more likely he was to use the educational broadcasts. However, it is important to note that experience accounted for a coefficient of determination (r^2) of 0.343 expressed as 34%. Though this showed a possible relationship between experience of a teacher and use of educational broadcasts, there was still some influence of other variables

in the use of instructional technology apart from teaching experience. This is shown in Table 1.

Table 1:
Pearson Correlation between teachers attitudes and teaching experience

		Teacher's Attitudes	Teachers Experience
Teacher's Attitudes	Pearson Correlation	1	.586**
	Sig. (2-tailed)		.003
	N	23	23
Teachers Experience	Pearson Correlation	.586**	1
	Sig. (2-tailed)	.003	
	N	23	23

** . Correlation is significant at the 0.01 level (2-tailed).

Teacher's Attitudes and Teaching Load

Lesson load allocation for all teachers in secondary schools relies on specifications given by Teachers Service Commission (TSC). According to TSC, a teacher in a secondary school is required to teach a minimum of 27 lessons per week. In a week of five working days, a teacher had a minimum of five lessons per day out of the possible nine. This left the teacher with four free lessons within which to prepare for teaching.

Findings from this study indicated that 13% of the teachers had less than 20 lessons of English per week. These were the teachers employed by the school and were teaching in the newly established schools. 4% had 20 lessons, 30% had 22 lessons, 13% had 24 lessons while the other 22% had 28 lessons each. Only 18% of the teachers of English had more than 30 lessons in a week.

Basing on these findings, 40% of the teachers of English had more than 27 lessons while 60% had less than 27 lessons. 30% of the teachers had 22 lessons which was below the minimum lesson load requirement by TSC. This meant the teacher had 4 lessons to teach in a day and 5 lessons within which to prepare for teaching. Teachers who had more than 27 lessons indicated that they always used the broadcasts for teaching English. The nature of teaching English language required them to give daily assignments for evaluation which were to be marked and returned the following day. The use of the broadcasts therefore allowed them adequate time to prepare for other lessons that did not use the broadcasts. The teachers also suggested that the teaching load for teachers of English should be reduced to a minimum of 20 lessons per week to give them enough time to prepare and use the broadcasts effectively.

Table 2:

Correlation between teacher's attitudes and teaching load

		Teacher's Attitudes	Teacher Load
Teacher's Attitudes	Pearson Correlation	1	.720**
	Sig. (2-tailed)		.000
	N	23	23
Teacher Load	Pearson Correlation	.720**	1
	Sig. (2-tailed)	.000	
	N	23	23

** . Correlation is significant at the 0.01 level (2-tailed).

From Table 2, the relationship between use of the broadcasts and the teaching load was indicated by a Pearson correlation (r) of +0.720. This showed that there was a close relationship between teaching loads and the use of educational broadcasts though there was still some influence of other variables. The coefficient of determination calculated as r^2 was .518. This showed that 51% of the teaching load may have been accountable for the use of the broadcasts for teaching English.

Teachers Attitude and Availability Equipment and Materials

Kenya Institute of Curriculum Development (KICD) produces three types of broadcasts for teaching English in secondary schools. These are the live (on-air) used with a radio, the recorded audio to be used with a radio cassette recorder or radio CD player and the recorded video used with a television and video machine or computer. This required a school was to have a radio, radio cassette recorder or radio CD player, a computer or television and video machine in order to use the broadcasts.

An investigation into the availability of broadcast equipment revealed the following. Findings from the data showed that 16% of the schools had radios and radio cassette recorders. 44% of the schools had television sets and video machines. 8% of the schools were well equipped with computers that were only used for teaching computer studies and not classroom teaching. Another 16% of the schools had computers for administrative work only. Only 16% of the schools lacked broadcast equipment.

A bigger percentage of the schools had television and video machines. However, this did not guarantee use of the equipment by the teachers. Abuli (2003) conducted an evaluation of the extent to which audio, visual and audio-visual media are used in instruction in a secondary school in Vihiga County. The results of the case study revealed that no such media was used during instruction despite the fact that the school under investigation was well endowed with some of the materials and equipment. Though 33% of the schools had computers, the equipment was not used for instructional purposes. The least owned equipment was the radio cassette recorder due to adaptation of digital technology.

Table 3:

Correlation between teachers attitudes and availability of equipment

		Teacher's Attitudes	Availability of Equipment
Teacher's Attitudes	Pearson Correlation	1	.839**
	Sig. (2-tailed)		.000
	N	23	23
Availability of Equipment	Pearson Correlation	.839**	1
	Sig. (2-tailed)	.000	
	N	23	23

** . Correlation is significant at the 0.01 level (2-tailed).

From Table 3, the relationship between attitude and availability of equipment was indicated by a Pearson correlation (r) of +0.839. This showed that there was a close relationship between teaching load and the use of educational broadcasts though there was still some influence from other variables. The coefficient of determination calculated as r^2 was .703. This showed that 70% of availability of equipment may have been accountable for the use of the broadcasts for teaching English.

In schools without broadcast equipment, the teachers indicated that they had made arrangements and either taken students out to watch the recorded video broadcasts or availed the broadcasts within the school. This arrangement had its own drawbacks. One, the students had to pay for the viewing and two, this demanded for extra time to be created for the same. Reasons given by head teachers for failure to purchase the equipment was delay in disbursement of Free Secondary Education (FSE) money for purchase of tuition materials, which included the broadcast equipment, under Account I (FSE Guidelines: 2007). This could also be attributed to poor planning and prioritization by head teachers and HODs with regard to purchase of broadcast equipment and materials. Secondly, there was so much concentration on purchase of text books (to achieve a 1:1 ratio) and purchase of laboratory equipment thereby ignoring purchase of broadcast equipment and materials.

The recorded broadcast material in the schools was inadequate. Most schools had only one video disk or audio cassette to be shared by all the teachers in the subject. The Head of Department indicated that this was due to the cost of buying the material. Material bought from curriculum developers was felt to be very expensive making schools not to purchase many audio and video tapes. Wisindi (2005) observed that many schools in the republic did not have access to audio and video tapes for teaching English. With regard to this, KICD should consider the possibility of reducing the prices of the tapes so that schools can buy more audio and video copies for use by all teachers.

Observation guides were also used to ascertain the availability of other broadcast materials like broadcast timetables. From the observation, it was established that there were very few broadcast timetables in schools. It was reported that some of the broadcast timetables had been removed from the notice board by teachers with negative attitudes towards use of the broadcasts. The other reason for lack of timetables was the poor distribution channel from the County Education Office. Subject teachers did not have personal broadcast timetables.

There was also no inclusion of broadcast lessons on the school timetables since recorded broadcasts which allowed teachers to make extra arrangements were used. For those who

used the live broadcasts, only few of the English lessons fitted within the school timetable. It was also evident that no teacher guides or student workbooks for use with the broadcasts were unavailable.

Apart from the text books, the only other materials available in schools for use with the broadcasts were the audio and video tapes from curriculum developers or other commercial sources like Sanaa Media Productions and Lions Gate Entertainment. Teachers pointed out that schools had not purchased other materials like handbooks, posters, fliers and banners produced by KICD as the materials were too expensive and that such could only be purchased at a central source in Nairobi. For instance, a single video tape from KICD cost Ksh. 1,500 while commercial tapes were sold for as little as Ksh. 300 each. Striking the balance between price and value compromised the quality of the content since some of the cheap materials were pirated and contained poor sound and picture quality. With regard to these findings, it may be appropriate to conclude that effective use of the broadcasts is likely to be hampered by unavailability of broadcast equipment and materials.

Teacher's Attitude and Frequency of Use

Frequency of use was used in this study to refer to the number of times the broadcasts were used by both teachers and students in a week. English is a compulsory subject that was taught every day and had 6 to 8 lessons per week. Seven areas of English were taught. These are speech work, grammar, comprehension, oral literature, poetry, conventional composition and composition based on the set books. Findings from the schools visited indicated that use of broadcasts for teaching English was not done on daily basis as scheduled on the broadcast timetable to schools.

The frequency of use of the broadcasts was also determined by time for airing the broadcasts. It was observed that not all lessons embraced technology since each school had its own teaching timetable. Apart from the scheduled times, the broadcasts were also used by teachers during free student time. This was in the morning before 8:00 am, during lunch break and at 4:00 pm after classes. 52% of the teachers indicated that they utilized these breaks using the recorded broadcasts. 22% of the teachers preferred to use the broadcasts during the weekend. This gave ample time to go through the content that had been covered during the week. Only 18% of the teachers used the broadcasts monthly. This was after covering several topics.

The relationship between attitude and availability of equipment was indicated by a Pearson correlation (r) of +0.562. This showed that there was a close relationship between teaching loads and the use of educational broadcasts though there was still some influence of other variables. The coefficient of determination calculated as r^2 was .315. This showed that 31% of frequency of use may have been accountable for the use of the broadcasts for teaching English. This is shown in Table 4.

Table 4:

Correlation between teachers attitudes and frequency of use

		Teacher's Attitudes	Frequency of Using Technology
Teacher's Attitudes	Pearson Correlation	1	.562**
	Sig. (2-tailed)		.005
	N	23	23
Frequency of Using Technology	Pearson Correlation	.562**	1
	Sig. (2-tailed)	.005	
	N	23	23

** . Correlation is significant at the 0.01 level (2-tailed).

Conclusion

Four factors that influence the attitude towards use of instructional technology have been identified: teacher's experience, teaching load, instructional equipment and frequency of use. From these four, two factors stand out as most significant. These are availability of equipment (70%) and teaching load (51%). This implies that effective use of instructional technology requires that schools be equipped with the necessary equipment and that teaching load be made manageable for teachers to adequately prepare and use the technologies. The efforts of teachers who use instructional technology should be recognized and rewarded so as to promote and sustain positive attitudes towards use of instructional technology for teaching and learning.

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