Availability and Use of Instructional Media Technology Equipment in Teacher Training in Kenyan Universities

Wanyonyi David Wamamili

Moi University, Department of Curriculum, Instruction and Educational Media, P.O Box 3900, 30100, Eldoret, Kenya

E-mail: ddwanyonyi@yahoo.com

A b s t r a c t
This paper assesses the status of instructional media technology equipment based on a survey of Bachelor of Education undergraduate preparation in development and administration of instructional media technology by Kenyan universities. The research sampled four universities out of the thirteen that are operational in Kenya. The universities that participated in the study were Moi University, Kenyatta University, the Catholic University of Eastern Africa and Baraton University. A survey research design was adopted. The researcher visited the Universities and third year Bachelor of Education students. Lecturers were involved in the study. Questionnaire, interviews and observations were used to collect data. The study established that departments of Educational Communications and Technology were inadequately equipped, lecturers were overloaded and time allocated could not allow all components to be taught. In light of the said findings the author recommends that universities should source for funds and ensure that ECT departments are adequately equipped

Keywords: Availability, Use, Instructional Media Technology Equipment, Teacher Training, Kenyan Universities

1. Introduction

Renowned educationists have averred that Learning Resource Centres (LRCs) for long were financed by the government. Later the cost sharing between parents and the government in management of these institutions was introduced. This is the position held by educationists like Eshiwani (1992) and Ayodo (1989). However, Bogonko (1992) states that Learning Resource Centres (LRCs) were initially financed by donors and grants from international institutions such as the International Monetary Fund (IMP), World Bank and UNESCO.

These assertions cast some light on the training of instructional media specialists. It should be clarified here that the relevance of the above researches lie in the fact that a trained teacher has to spend good time in the LRC and any university that has an LRC that is not adequately equipped might not serve the expected purpose. An institution that trains teachers must have such a unit. Its absence spells doom to the teacher trainees which in turn trickles to the students they teach. The current study looked at how equipment in the Departments of Educational Communication and Technology are acquired. The revelations of inherent constraints indicate that there should be established strong links between universities and donors (local and international) outside the traditional ways of financing Learning Resource Centres via meagre requisitions.

1.1 Statement Problem
Technology is a necessity in the modem world. A competent graduate teacher will be the solution to present attempts to technologize. As a response to questions raised by scholars, the manner of teaching witnessed in schools might be a direct reflection of the type, level and manner of training university graduate teachers receive.

University graduate teachers have influence on other categories of teachers in that they are looked upon to provide leadership in innovativeness at secondary school level. If they are not performing well in media education at this level, then the non-university graduate teachers in lower school education levels are most likely to perform poorly.

Training of a graduate teacher is an expensive undertaking. The government invests heavily in this training. A lot of taxpayers' money is used in the hope that beneficiaries will acquire relevant skills that will be useful to the whole nation. It is anticipated that such graduates will be at the forefront in unveiling and inventing mechanisms of solving complex issues for the benefit of the society. The teacher is best placed to impart the skills and knowledge to youngsters (at the secondary school level). Indeed the ratio of a government's domestic product

spend on education is very high. In the case of Kenya, the Ministry of Education consumes the highest allocation of the total budget annually. In such a situation, the best should come from this wanton expenditure. All round teachers who are innovative and adaptive to different teaching/learning circumstances should be produced by the universities. Indeed a high premium is placed onto a university trained teacher.

It is in the realization of the vital role of the university graduate teacher in the education sector that arouses sensitivity to any perceived deficiency. For instance, most teachers use only lecture methods in teaching. This is the commonest, cheapest and popular method but lacks newness. Since most teachers do not incorporate instructional media, the current study is conducted to establish the probable challenges at the training level that might be contributing to the said shortcoming.

Since media education is broad, a single study cannot cover the whole. The author focused on how trainee teachers are prepared in development and administration of the media while at the university. The need for investigating this problem was to determine the efficiency and effectiveness of preparing graduate teachers in media education in the Faculties of Education at university level.

1.2 Staffing

The concern of the author was on the training of graduate teachers who make the bulk of teaching staff at all levels of learning. In particular, they are sent to secondary schools, teacher-training colleges, universities after completing first degree and then enrolling and completing postgraduate studies at masters and/or doctorate degrees levels.

The developed world attaches the importance of media in education and avails the required media and skilled manpower in teacher education. For instance, in America once a school has an enrolment of up to 250 students, then there will be a media specialist assigned to the institution to serve them (Furthergill, 1974). This is done at secondary level but at colleges and universities the number of students per media specialist will be far less. In Africa, and Kenya in particular, it may not be possible to strain to reach the ideal situation as in the developed world. But a comparatively acceptable remedy of posting some media specialists to schools should be undertaken. Just as it happens with laboratory assistants or technicians or librarians, it should similarly be seen necessary to employ media specialists in schools.

Indeed the 250 ratios of students per media specialist is the recommendation of the American school Librarians and Association for Educational Communication and Technology. This will definitely call for an additional employee. But this study's interest was to find the level at which teacher trainees are trained in media so as to cover up where a person specifically trained in media'(but not serving as a teacher is lacking. This will be cost effective in the Kenyan economic case. It is the type of staff produced that will give value to media use. Even where there is a very good and well equipped learning resource centre (LRC) there must be a teacher who is well trained in use and application of media. Without such skills the LRC might not serve the intended purpose. Kimani (1997) captures the importance of staff well grounded in instructional media thus:

> ... a school library resource centre will depend very much on the staff. It can therefore be
> derived that a learning resource centre must be provided with competent and qualified staff if it
> is to serve its clientele effectively and efficiently (p. 30).

The author of this paper sought to establish the effectiveness of the departments of Educational Communication and Technology in providing the needed skills to potential teachers. This paper looks at the impact of motivation on the training in instructional media. It is imperative to note here that researchers have established that media specialists are indeed marketable. For instance, Lwangasi (1985) has found that media specialists easily leave institutions of learning where they are initially employed for greener pastures in parastatals. This awareness should encourage the lecturers and students to place emphasis on practical orientation so that a graduate teacher should not be a frustrated person whether employed as a teacher or in any other field that needs such skills.

A research by Mukwa (1979) on the availability of audio-visual media in secondary schools in Kenya and the role they played in upgrading class room teaching has indicated that schools have a variety of media. They have printed matter such as posters and flat pictures, tape recordings and radio programmes, TV programmes and drama techniques. Such findings presuppose the staff well founded in instructional media. Otherwise, they might not be in a position to utilize whatever media they have in schools. It is in the wake of such observations that the author aimed at establishing the components of training that ensure efficient utilization of material found in schools and at the same time the skills inherent in innovating to cover for whatever might be lacking.

1.3 Limitations of the Study

The study was limited to departments of Educational Communication and Technology in the faculties of Education in the following universities: Kenyatta, Moi, Catholic University of Eastern Africa and Baraton. Thus the study targeted universities that offer Bachelor of Education. Teacher-training colleges that offer educational curriculum below degree level were not incorporated in the study.

The study would have covered all the universities in Kenya: that is, public and private. However, the time at the author's disposal could not allow an undertaking of such a magnitude. Secondly, such expansive involvement would have been extremely expensive. Thus, time and finances could not allow the wider inclusion of other universities by the researcher. The representative sample of the four universities was adopted.

2. Materials and Methods

The study was a field survey that saw the author physically visit four universities in the republic of Kenya. The author visited the universities that participated in the study and organized with the authorities on how to meet the students and the lecturers that were sampled for the survey.

The study was confined to the universities that offer Bachelor of Education Degree programmes. Today, Kenya has a total of thirteen universities - Kenyatta, Nairobi, Moi, Egerton, Maseno, Catholic University of Eastern Africa (CUEA), University of Eastern Africa Baraton (UEAB), Daystar, Kenya Methodist University, United States International University (USIU), Nazarene, Kabarak and Jomo Kenyatta University of Agriculture and Technology. In order to select the sample for the study, the author based on various factors. Kenyatta University was selected because it is credited for innovativeness (often quoted in daily papers) and produces the highest number of Bachelor of Education graduates annually. Moi University was selected to participate on consideration of its principle of inception that it was meant to be a university with a difference (that whatever it produces must be the best). Catholic University of Eastern Africa was selected to represent the urbanite, private and elitist foreign foundation ideological category of universities. Baraton represented church institutes with a rural set up. From a total of twelve universities that the study could have targeted only four (33%) were used in the current study.

Sample population included lecturers in the selected universities in the Departments of Educational Communication and Technology. The universities have different categories of students categorized as PSSP, School Based, Holiday Based/Distance Learning, Primary Option, guidance and Counselling, PGDE among others. This research isolated all other categories but dealt with regular students only. It did not deal with students who repeat or carry forward their courses. From these numbers participants were selected proportionately. The study used 200 participants comprising 20 lecturers (proportionately selected) and 180 fourth year students. Fourth year students were selected because they had done all or most ECT courses and completed their teaching practice or were to proceed to teaching practice. Thus they were in position to respond adequately to questionnaire and interview schedule items.

The data for the study was collected using the questionnaire, observations and interview schedules. The data collected was recorded in form of tables, especially bar graphs and pie chart diagrams for clear understanding of the results. This was done by use of a computer Excel program. The results were presented in percentages from which decisive conclusions were drawn and reported. A detailed analysis of the data collected is reported in chapter four that follows.

3. Results and Discussion

3.1 Exposure to Instructional Media Resources

The respondents were given an inventory of instructional media resources that are mandatory in a higher institution of learning. The inventory consisted of the following types of media resources:

- Graphics

- Projectors

- Computer

- Fieldtrips/community resources

- Simulations/role play

- Realia/aquaria

- Tape recorders

- Types writers

- Video camera

- Photograph camera

- Dark room for film processing

- Chalkboards

3.1.1 Catholic University
The students were given the inventory and asked to indicate the types of resources and exposure to them at CUEA. These were graphics, projectors, computer, field trips, simulations, realia, photographs, acquaria and recorders. Figure 1 gives a glimpse of students' responses.

From the results, 8(82%) indicated that they had had practical exposure on (making/utilizing) graphics, 7(6%) on opaque/overhead projectors, 5(50%) on computer, 2(20%) field trips, 1(15%) simulations, 1(8%) realia and 1(6%) aquaria, 1(5%) tape recorders and 1(5%) photograph. A follow-up question that required responses on why some media had a limited incorporation into the teaching/learning process saw 7(70%) indicate that the equipment and space were not enough as 3(30%) indicated that time was limited. It should be stated here that space is used in reference to laboratory and media rooms.

3.1.2 Kenyatta University
Observations at Kenyatta University were quite different from those at Catholic University. When it came to the inventory of instructional media, the findings were variously explained. In follow-up interviews, students indicated that facilities were quite available. But they were not fully exposed to them. Figure 2 shows students' responses.

As shown in Figure 2, 95(95%) of respondents indicated that they had had practical lessons in production of graphics, 96(96%) tape-recording, 90(90%) computer, projectors had 75(75%), 40(40%) on field trips, 20(20%) realia, 20(20%) photography, 15(15%) acquaria and 10(10%) on simulations. However, during interviews, the students stated that despite the availability of the required resources, they felt they were not competently trained in hands-on operation due to the huge numbers of students in the classes.

3.1.3 Moi University
Just like it was done at Catholic University of East Africa and Kenyatta, students at Moi University were given the questionnaire. The outcome at Moi University are presented in Figure 3.

As seen in Figure 3, 59(98%) of the respondents indicated that they had had practical in producing graphic materials, 42(70%) in handling of the opaque/overhead projectors, 12(20%) had exposure to computer (courtesy of EeT), 9(15%) had field trips, 9(15%) for simulations, 6(10%) had realia, 3(5%) video shooting and finally 3(5%) aquaria. The respondents indicated that the shortcoming in the application of instructional media in teaching/learning is due to inadequacy of equipment and space. It is not enough to serve all.

3.1.4 Baraton University
Baraton University students' responses were different. There was a remarkable difference in percentages as compared to those from the other universities. Their responses, in light of an instructional media resources inventory, were as presented in Figure 4.

As shown in Figure 4, Baraton students' responses indicated a higher level grounding in the practical exposure to instructional technology. The respondents were asked to indicate against each media resource the level of exposure. They were supplied with the words 'severally', 'few occasions', 'not sure', and 'none'

On the scoreboard, 9(90%) used the word "severally" for graphics, 8(85%) for overhead projectors, 7(75%) for computers, 6(60%) for field trips, 4(40%) for realia, 3(35%) for aquaria. Basing on the use of the word "severally" in comparison to the other three, at above 7(70%) on computer, overhead projectors and graphics, it shows that this university exposes students to media practical at a very good level. In a follow-up question that required students to name any two media resources they felt quite comfortable to use or operate 8(80%) indicated being comfortable with graphics, opaque projectors 7(75%) on tape recording, and 7(72%) video shooting/photography.

On being and further asked to give a leading handicap that militates against a full-fledged application of instructional media, 6(60%) indicated that equipment are not adequate for the class. Forty per cent (4) blamed this problem on lack of time or scheduling on the side of the students.

3.2 The Students' Rating of Instructional Media
3.2.1 Catholic University of East Africa'
Students highly value the inclusion of instructional media in the learning/teaching process. When asked to state whether or not it is necessary to incorporate instructional media in teaching, 8(80%) of the students indicated that it is necessary to incorporate them. A similar number, 8(80%), said that it is very important to allocate adequate time to media lessons. Twenty per cent (20%) did not see the need for instructional media in teaching. Of the 20% who felt that instructional media is not necessary, 1(15%) of them said that lecturers who handle media practical avoid some areas (evidenced in interviews - that not all that is indicated in the course out lines is covered). In this case the students' contention was that since lecturers avoid some areas and aspects of media topics, then it is possible that they will always avoid those challenging topics when they do not have ample time or those they are not comfortable to handle.

To succeed, media should be taught as a separate subject; and even practical should be given their separate marks and grading. Five per cent (5%) averred that competent teachers in the field who incorporate media practical are not rewarded materially or in the form of motivation. Asked to state what they consider to be the leading importance of instructional media technology, 7(70%) asserted that competence in instructional media technology is a sure way of being a competent teacher. Twenty per cent (20%) stated that media incorporation is meant to reduce boredom. Ten per cent (10%) stated that it can lead to various openings on the job market.

3.2.2 Baraton University
Respondents at Baraton University affirmed that instructional media should be incorporated into the teaching/learning process. This was presented by ninety per cent (9) of the respondents. They also indicated that departments should increase the number of lessons for instructional media technology. Only ten per cent (1) felt that instructional media is not a necessary component of teaching.

3.2.3 Moi University
The students at Moi University rated inclusion of instructional media in teaching highly Seventy per cent (42) said that it should be incorporated into learning and teaching. They also said that a lot of time should be set-aside for practical lessons. Thirty per cent (18) did not see the need of incorporating media. Some of the students with negative attitudes to media said that teachers in the field are not rewarded for their innovation in media development. Sixty per cent (36) of the respondents felt that competency in instructional media is a sure way of being a competent teacher.

3.2.4 Kenyatta University
At Kenyatta, 100(100%) students indicated that instructional media was quite important and there were no remarkable differences with observations in the other universities.

3.3 Lecturer's Responses
3.3.1 Availability of Media Resources
Lecturers indicated that there were generally less media resources as compared to the number of students. One of the questionnaire items wanted to establish lecturer's views as to why it is difficult to orientate students in media practical. Given the probable causes like expenses involved (in case of purchase or travel/transport), interest and skill of lecturers in some media resources made some lecturers to lament inadequacy of facilities, lecturers indicated that facilities is the biggest problem viewed against the huge number of students they deal with. As seen from the preceding figures it emerges that inadequate resources as well as facilities are the major undoing for teaching and learning of instructional media. Over eighty per cent (16) of the lecturer respondents indicated that there is a shortage of instructional media.

The author also had an interest in establishing availability as well as proximity of facilities. On proximity, the target was to find out whatever there was within the university but outside the Department of Educational Communication and Technology. It was established that Kenyatta, Moi and Baraton universities had instructional media rooms that housed media resources. The Catholic University of Eastern Africa was also in the process of establishing one. Additionally, it was established that Kenyatta University has a well-established aquarium, botanical garden and a gymnasium. These serve students taking biology and physical education respectively.

3.4 Observation Results on the Status of Media Resources

The author also observed the position of media resources in the universities. The interest here was to establish the resources available against the number of students. Kenyatta University was found to be quite well equipped. It had several computers, opaque projectors, videotapes, cameras, raw materials for graphics and a number of tape recorders. The same could be said of Moi. However, Moi University had very few video cameras. Despite the relatively high-level equipment at Kenyatta, it happens that the university at the same time has a very high number of Bachelor of Education students. As reported elsewhere, the university was found to have a huge number of B.Ed students in the 2003/2004 academic year.

3.4.1 Moi University

The categorization of media resources guided the observation. Moi University had an assortment of traditional, modem and those running on the continuum of traditional to modem. However, they are far below the required level when compared to the number of students they are to serve.

3.4.2 Baraton University

Baraton University had relatively a small media room but well equipped. The room has a wide range of media resources such as computers, cameras, videotapes, opaque projectors, chalkboards and radios and tape recorders. However, unlike at Kenyatta and Moi, these facilities could suffice for the number of students enrolled for Bachelor of Education.

3.4.3 Catholic University

CUEA was found to be most disadvantaged in media availability. The University lacks a well-established media room. Whatever that was available could easily be termed as a store for media resources. And a number of resources were lacking. For instance, there were no reference material, no media cameras and video tapes, among others.

3.5 Lecturers' Offices

The resources in offices of the lecturers in the Educational Communication and Technology Departments were also observed. At Kenyatta University at least some lecturers had computers in their departmental offices. At Moi University, a computer was only available in the Head of Department's office. The computer served secretarial purposes. This situation was replicated at the rest of the universities. This implies that accessibility to computers was not easy; and the other problem was that Moi university lecturers shared offices. The limited space makes it difficult to collect and store the relevant media resources. There were also several charts, moulded media and other specimen in these offices.

Lecturers at Baraton and Catholic universities have offices of their own. Under such circumstances it is easy to make a collection or innovate and develop own instructional materials. And where necessary it can be easy to give tutorials to students in the offices. There will be enough space for a lecturer to do his/her work without fear of inconveniencing another person who is at the same office. Handling media can at times be untidy. For instance when one deals with raw materials that include clay, various specimens of plants and animals makes the room dirty. The production might involve a lot of work on the raw material such as spreading on the surface, pinning on the walls, cutting pieces and scattering them on the table etc. Thus if the office is shared all these will be unwelcome to somebody who does not value creativity, Innovativeness and attainment of objectives and goals that are set.

4. Conclusion

When one enters any of the universities sampled, it is not possible to realize that facilities and resources are a problem. But on getting to learn of all the courses offered and the number of students, it becomes clear that some constraints exist. For instance, lecture halls are hardly sufficient for huge classes. Moi University for instance has three large halls namely Lecture Hall 1, Lecture Theatre 4 and Students' Centre. Kenyatta University has

Harambee Hall, Science Zone Main Hall, Arts Zone and Science Complex. But these halls require a public address system. The public address system is rarely available and seems faulty. It is not designed to suit the class situation.

The ECT departments should have hall in-built systems that should not interfere with adjacent classes. The lecture halls and public address systems might be available but not enough for the very many huge classes. Lecture theatres are in most cases congested. They are not sufficient and the situation is worse when students enter media rooms for practical lessons such as operation of instructional media. The spaces are insufficient for large numbers. Resources such as computers, copy printers, video cameras, video tapes, radios and binocular cameras are extremely few. This means that students cannot practice on their own. The situation on media resources is even worse when it comes to those that must basically be accessible by lecturers. For instance, save for some at Kenyatta University the rest do not have computers for lecturers. All their offices do not have computers. They have to use one in the Head of Department's office. Unfortunately such a computer is meant for secretarial services in the department. It was worth concluding that lecturers simply lack computers.

5. Recommendations

The author recommends that heads of departments should give resource needs in their annual requisitions. They should go further and establish partnerships with manufacturers and dealers in various fields and other willing philanthropists and partners so as to assist in financing and equipping this vital department in education. It is strongly recommended that the Departments of Educational Communication and Technology should buy or develop resources that are cheap. They may develop by use of locally available raw materials. It does not pay to be sophisticated and yet beyond the means. It is in this breath that the author recommends a serious reconsideration of traditional media and ensuring that such media is fully provided for. This coupled with an assortment of the expensive modem media will make practical experience raised to a worthy level. On the other hand *ECT/CIEM* departments should make extensive use of community learning resources and other resources within University reach. The latter might include - instead of acquaria - Moi University Chepkoilel Campus can use Fisheries ponds and Marine features; forest departments fields; CUEA can use the Nairobi forest, the nearby Bomas of Kenya (so many activities take place and there are lots of varied media).

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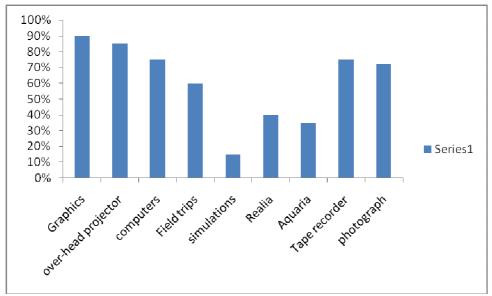
Figures and Tables

Figure 1. Students' responses at Catholic University on availability of and exposure to resources
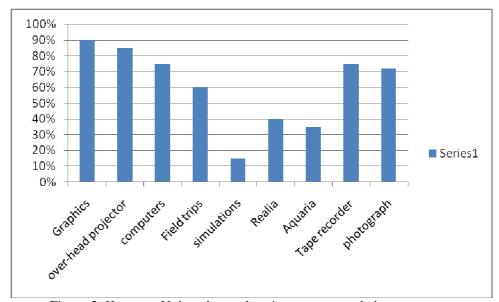

Figure 2. Kenyatta University students' responses on their exposure to
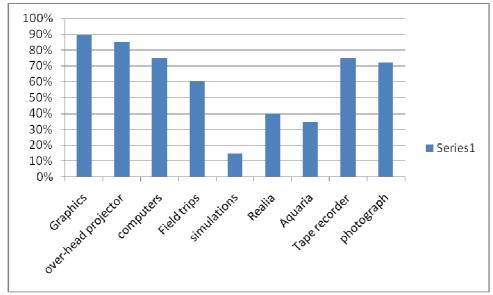instructional media

Figure 3. Moi University students' responses on level of training in instructional media.
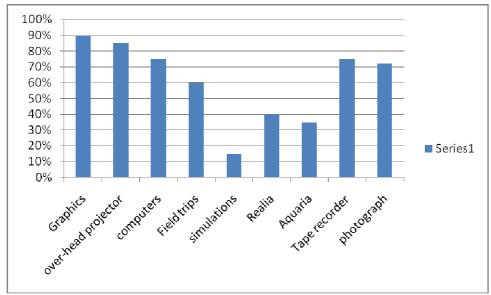

Figure 4. Responses at Baraton on Practical acquaintance in media

Table 1. Media facilities in the selected Universities

University	Media Room	Aquaria	Others
Kenyatta	Huge room and secured	Available	Gymnasium
Moi	Medium room and secured	Available	Engineering laboratories, animals
CUEA	Good room to be secured	Not available	
Baraton	Good room but small	Available	Agricultural gardens and animals

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