MONITORING OF EDUCATIONAL TECHNOLOGY PROGRESS TO ENHANCE THE QUALITY OF GRADUATE TEACHERS FROM THE KENYAN UNIVERSITIES

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Abstract

It makes sense for a teacher education university to keep a close watch on its environments and adapt to any changes so that it can develop contingency plans and actions which reduce the response time needed to address an environmental opportunity or threat. The close watch helps identify the needs, changes, and challenges characteristic of the environment in which the graduate teacher will work, and understand how the impact of these affects a university's teacher preparation strategy. Accurate and timely information about critical aspects of the environment related to educational technology are crucial to the quality of graduate teachers.

The purpose of this study was to establish how progress in educational technology is monitored to enhance the quality of graduate teachers from Kenyan universities. The study was guided by the General Systems Theory by Bertalanffy (1975) and adopted a descriptive survey research design. Four universities selected from ten Kenyan universities engaged in teacher preparation programs participated in the study. Data was collected from forty lecturers from the selected universities using the questionnaire.

This study established that there are low interaction levels between lecturers and head teachers. The flow of information on changes in the schools to lecturers' profession was found to be slow. The study recommends that universities develop and promote research in teacher education in order to encourage evidence-based decision-making in all aspects of teacher development. Universities also need to establish communication structures that

connect all relevant stakeholders in teacher education, which will consequently enable them to identify challenges relating to use of educational technology for both students and lecturers and deal with them.

Keywords: Educational technology, quality, monitoring

Introduction

Teacher education plays a major role in preparing the graduate teacher for work environment demands, and should, therefore, be responsive to these demands. This implies a need to provide quality preparation of teachers, which can only be received through a program that is relevant to the needs of its recipients. This status of preparation requires great efforts at producing the kinds of graduates who will not only be adaptable to the rapidly changing needs of Kenyan society but also contribute to innovation and development.

Educational technology is one of the key aspects of teacher preparation in which graduate teachers need to be well grounded. Owing to the fact that it plays a major role in both teaching and learning, and that the outcome of both processes impacts an ever-changing, dynamic society, strategic response in educational technology for teacher preparation is important in terms of effective and efficient achievement of training objectives. The process of strategic teacher preparation requires attention to trends and external developments so that graduate teachers are well prepared to perform their roles, duties and responsibilities more effectively and with greater confidence to meet the demands of the changing world and work environment.

The 1973 Commonwealth Conference on Teacher Education (Commonwealth Secretariat, 1973, 1974) recognized the need for specific and relevant training. It also noted that the key to educational quality is the quality of the training force as a whole. The teaching force needs specific teaching skills that are important and cannot be acquired through a process of professional osmosis. This suggests that teachers should be prepared adequately in order to adjust their skills, strategies, techniques, and attitudes to be able to use the current and new technology in instruction and professional growth, and to be able to keep abreast with the changing demands of the teaching profession. This means that a teacher education university needs to acquire and use information about events, trends, and relationships relating to educational technology progress in its external environment.

Statement of the Problem

Karugu (2007) asserts that from the beginning of graduate teacher education in Kenya in 1966 the challenge of teacher education has shifted from merely meeting manpower needs

to issues of quality in graduate teacher education, professionalism, and unemployment of graduate teachers. In his tracing of development of graduate teacher education, he notes that as early as 1978, universities sought to improve the teacher training programs, to relate to, and satisfy the needs of the schools as well as those of the graduate teachers themselves (University of Nairobi 1979: iii). He adds that interaction between university lecturers and secondary schools in terms of curriculum matters has diminished over time, and that reduced interaction between universities and secondary schools has been characterized by, among others, non-participation in setting and marking of secondary school examinations by university lecturers.

Karugu (op cit) also notes that it would be expected that lecturers have an opportunity to familiarize themselves with secondary school curriculum when they visit schools during the teaching practice (TP), to supervise their students. This is, however, not the case as the TP time is too short. There is also little follow up of TP after students complete the exercise and rejoin the university to continue with the academic studies.

The Kenya Institute of Education (KIE) undertook an evaluation in 1983 to determine the effectiveness of teacher education programs in Kenya (Abenga, 2005:22). This study revealed that teacher trainees considered the programs irrelevant to the real situation outside college. The findings showed that quite often institutions that give initial training are not in touch with the schools, which are one of the essential sources of information on educational technology progress. Over twenty years down the line, a study was necessary to establish whether and how the institutions are in touch with sources of information.

Purpose of the Study

The purpose of this study was to establish how progress in educational technology is monitored to enhance the quality of graduate teachers from Kenyan universities.

The objectives of the study were to:

a) Determine lecturers' rating of flow of information on technological changes in the graduate teachers' work environment into their (lecturers') profession.
b) Establish the relationship between lecturers' attitude towards educational technology and their rate of flow of information on technological changes into their (lecturers') profession.
c) Examine lecturers' interaction with sources of information on the use of educational technology in schools.
d) Determine the relationship between lecturers' interaction with sources of information and their lecturers') rate of flow of information on technological changes in their profession

e) Establish lecturers' response to information from sources of information on educational technology.

These findings will help produce competent teachers who are able to meet the emerging societal needs and challenges both locally and globally. Policy makers especially in the Ministry of Education, teacher trainers, education technologists and all those concerned with teacher preparation at university level will find these findings relevant in improving, innovating, and evaluating their teacher preparation programs. Other trainers at the universities will also find these findings important as they can possibly apply them. Above all, universities will find these findings useful, as they need to remain relevant in teacher preparation and effective in solving societal problems.

Theoretical Framework for the Study

This study was guided by the General Systems Theory (GST) advanced by Bertalanffy (1975). This theory describes the relationship between a system and its environment. This theory helps a teacher education university to identify the critical aspects of its environment. It provides a simple yet powerful approach to understanding how the institution interacts with its environment and illustrates why the institution needs to be proactive and responsive to changes in its environment in order to survive.

The teacher education university's environment is what is outside it. This can be defined as those factors that have an impact on the behavior of the university, and over which the university has little or no control. Though these factors are outside of its control, the university needs to consider them for decision making. The attitude of the university toward the environment should be one of active watchfulness, an action necessitated by the intensity of the interactions between the environment and the university and the degree of turbulence of the environment. Since according to GST teacher education university outputs ought to be accepted by the environment (and the university requires awareness in order to respond to its environment), the university has to have a way of monitoring changes in the environment in order to get accurate and timely information that helps in decision making.

Literature Review

Teacher education is important in preparing teachers for their work and is expected to equip them with the necessary knowledge, skills, and attitudes for competent performance. Abenga (op cit) indicates that teachers need to be trained so as to instill in them reliable methods of teaching. These methods must be those that effectively connect training programs with on-the-job performance of teachers. Teachers must be trained to be competent in whatever they plan to teach as they complete their course. Teacher education universities

must therefore establish what is expected to be done by their graduate teacher. Only then can one consider the best methods and educational technologies that will link the teacher education program to the real work setting. This means that the trainee's educational technology needs should be matched to the requirements of the training objectives and the workplace environment. In the case of educational technology, this is possible if the university monitors the technology's progress.

Educational technology plays a key role in the instructional process as it adds concreteness to any learning situation. Most scholars of educational technology (e.g. Aggarwal 2004; Romiszowski 1988; Heinich 1984; Galda 1984) argue that greater learning results are realized when educational technology is applied in teaching and learning, that equal amounts of learning are often accomplished in less time using educational technology, and that it generally facilitates learning and is preferred by learners when compared to traditional instruction. Any teacher education program therefore needs to give careful consideration to the preparation of teachers to enable them handle educational technology competently; the concerned institutions also need to collect information on a regular basis in a bid to monitor technological changes taking place in their graduate teachers' workplace.

A teacher education university that desires to be viable and relevant in its training program needs to, among other things, acquire and use information about events, trends, and relationships relating to educational technology progress in its external environment, the knowledge of which would assist in planning the university's future course of action. This further helps the university to create its future. This activity is important in the development of the university's capacity and capability for change. It helps identify the external forces, events, trends, issues and relationships that might assist or adversely affect the university's future in teacher preparation. Teacher education universities need to monitor the environment in order to understand the external forces of change so that they may develop effective responses, which secure or improve their position in teacher preparation in the future (Aguilar ,1967; Choo & Auster, 1993). It enables the university to avoid surprises, identify threats and opportunities, gain competitive advantage, and improve long-term and short-term planning (Sutton, 1988), and determines the university's ability to adapt to its outside environment. It can be conducted formally (e.g. research programme or a scenario planning exercise)or informally (e.g. a casual conversation at the lunch table with a parent, teacher, head teacher or a chance observation of a learning resource centre). This helps the institution to gather information on how best to improve the quality of its graduates by adequately preparing them to face educational technology challenges in their workplace.

A look at past studies shows that monitoring the environmental changes improves performance. Miller and Friesen (1977) analyzed eighty-one detailed case studies of successful and failing businesses, and the study found that intelligence-rationality factor (which comprises monitoring the environment, controls, communication, adaptiveness, analysis, integration, multiplexity, and industry experience) was by far the most important factor in separating the successful companies from the unsuccessful ones, accounting for more than half of the observed variance. Similarly, Newgren *et al.* (1984) compared the economic performance of twenty-eight US corporations that regularly monitored their environment with twenty-two non-practising firms. Performance was measured over a five-year period (1975-1980) using the firm's share price/earning ratio, normalized by industry. Data analysis showed that firms monitoring their environment significantly out-performed non-monitoring firms. The average annual performance of the monitoring firms was also consistently better than the non-monitoring firms throughout the period. The study concluded that monitoring the environment had a positive influence on corporate performance. Dollinger (1984) analyzed the performance of eighty-two small firms and concluded that intensive monitoring of environment was strongly related to organization's financial performance, where the monitoring was measured by the number of contacts with outside constituencies such as customers, competitors, government officials, trade associations, and so on. West (1988) examined the relationship of organizational strategy and environmental monitoring to performance in the US food service industry. Data were collected from sixty-five companies over the period 1982 to 1986. The study found that strategy and monitoring the environment had a substantial influence on the firm's return on assets and return on sales. An in-depth case study at the Georgia Centre for Continuing Education by Murphy (1987) concluded that monitoring the environment is an important component of the organization's strategic planning process, improving the Centre's ability to react to and implement change in response to external factors. Since monitoring of external progress is a quintessential form of organizational information seeking, this study would need to establish how educational technology progress is monitored to enhance the quality of graduate teachers from the Kenyan universities.

Digolo (2006) notes that teacher educators need to use research results when making policy decisions affecting education. Implied in these sentiments is the need to understand the needs of the graduate teachers' work environment so as to provide relevant training, a practice that should not be viewed as an event but as an ongoing process. Similar sentiments are echoed by Kafu (2006), that since the mid-seventies, (Kenyan) teacher education

curriculum has remained narrow and rigid in nature and scope; it emphasizes the training rather than the preparation of teachers. There has been no attempt to make it responsive to the emerging trends in the society in general and education in particular. Consequently, it has continued to produce conservative/traditional school teachers who are pervasive to change, less creative and innovative, and unable to manage modern instructional and non-instructional institutions. Information seeking, characterized by frequent interactions between teacher education universities and other sources of information such as head teachers and the curriculum developers, would enable the universities to provide training that is relevant to the needs of the dynamic work environment.

Research Design and Methodology

This study adopted a descriptive survey design. Four universities out of ten universities engaged in teacher education participated in the study; this constituted 40% of the target number of Kenyan teacher education universities. Stratified random sampling was used to select the universities; this allowed both private and public universities to participate in the study, thus presenting the researcher with information from both categories of universities.

The study population comprised of lecturers in the selected universities in the Departments of Educational Communication and Technology. The total number of lecturers in the departments was 71. Forty lecturers participated in the study, and were selected using simple random sampling. The lecturers were selected because they were the ones who trained student teachers in teaching subject methods and in the use of educational technology. Data on monitoring of educational technology progress was collected from these respondents using the questionnaire, developed by the researcher Content validity of this instrument was ascertained through scrutiny by educational technology specialists selected from Moi University while constructing validity was established through the scrutiny by educational technology and research specialists in Moi University followed by a pilot study of the instruments. Reliability of the research instrument was established through a pilot study carried out in Kenyatta University and reliability established using Cronbach's Alpha. A reliability coefficient ranging from .896 for all questionnaire items was established. This was considered high enough to judge the questionnaire reliable and served the purpose of assuring the researcher that research instrument was reliable.

Summary of Findings

Successful management of colleges and universities depends upon the ability of the decision makers to adapt to the rapidly changing external environment. Fahey and Narayanan

(1986) suggest that effective monitoring of the external environment enables decision makers to understand current and potential changes taking place in their institutions' external environments. Below is a summary of findings on monitoring of educational technology progress to enhance the quality of graduate teachers from the Kenyan universities.

a) Lecturers' Rating of Flow of Information on Technological Changes in the Graduate Teachers' Work Environment into their (Lecturers') Profession

Table 1 shows how lecturers rated flow of information on technological changes in the graduate teachers' work environment to the lecturers' profession. The findings show that 50% of the lecturers rated the flow as fast; the mean score of the responses shows a flow that is not fast, agreeing with Gall et al (2005) who argue that it often takes a long time for information to find its way into practice and that the change process in education is very slow.

The implication is that lecturers response time was increased, thus not allowing them to keep at par with changes taking place in the graduate teacher's work environment. Universities, therefore, need to put certain mechanisms in place to ensure that any changes taking place are immediately communicated to the lecturers. Such mechanisms would include setting up a unit composed of educational technology specialists whose main duty would be to monitor changes, carry out research, constantly inform lecturers and advise on what needs to be purchased. This has been articulated by Mckersie and Walton (1991) that managers who understand the management of technological change often realize success in educational technology use and implementation. That way, responsiveness would always be ensured as lecturers would have more time to teach, guided by research findings and recommendations.

In relation to findings presented in Table 1, failure to ensure a timely filtering of information into lecturers' profession amounts to a serious omission by teacher education universities. This is articulated by Materu (2007) who says that without a robust system to ensure that programs offered are relevant to the socioeconomic needs of the society they serve, universities lack a mechanism to promote and monitor their accountability to their stakeholders (students, parents, government, and other funders). This implies that Kenyan universities have to endeavor to improve the filtering of information into lecturers' profession in order to maintain relevance and responsiveness.

b) The Relationship between Lecturers' Attitude towards Educational Technology and their Rating of Flow of Information on Technological Changes into their (Lecturers') Profession

A Kruskal-Wallis test was conducted comparing the lecturers' attitude towards educational technology and their rate of flow of information on technological changes into their (lecturers') profession. The aim of this test was to find out if the lecturers' attitude towards educational technology was influenced by the rate of filtering of information on technological changes in the lecturers' profession. The results from the analysis of data are presented in Table 2.

From the analysis in Table 2, at 0.05 level of significance, the study noted that there was no significant relationship found between the flow of information and lecturers' attitude, indicating that whether the flow of information was slow or fast, the lecturers had a positive attitude towards educational technology.

c) Lecturers' Interaction with Sources of Information on the Use of Educational Technology in Schools

An institution needs to intrude actively into the environment in order to be aware of the changes taking place in the environment. That way it becomes informed and responsive to the needs of the environment; this was the underpinning philosophy of this study. Teacher preparation is part of an interactive system which requires interaction among and between stakeholders (Bandura, 1977). Such interaction allows the flow of relevant information, which is in turn fed forward to forecast changes and prepare for them. In a bid to establish the sources of information and the strengths of each of them, the study sought the lecturers' frequency of interaction with sources of information. The responses are presented in Table 3 which shows the frequencies and mean scores of the responses.

The findings from Table 3 show that lecturers frequently interacted with teachers in the field (75%) and registered low interaction with university mechanisms of reporting from schools (27.5%) and tracer research reports (27.5%). Other major sources of information are postgraduate research at the university (70%) assessment during teaching practice (67.5%) and feedback from students after teaching practice (60%). The fact that lecturers interact more with teachers in the field than with students during and after teaching practice means that lecturers are more engaged in informal environmental scanning than in formal environmental scanning. This is further attested to by the finding that lecturers least interact with university mechanisms of reporting from schools.

The findings also show that there were minimal interactions between lecturers and head teachers (15%), parents (30%), the Kenya Institute of Education (32.5%), tracer

research reports (27.5%), and university mechanisms of reporting from schools (27.5%). These low levels of interaction between lecturers and other stakeholders would mean missing relevant information, which would otherwise be useful in teacher education, and especially in the area of educational technology. In economics characterized by changes and the emergence of new production paradigms based on knowledge and its applications, and on the handling of information, the links between the teacher education universities, the world of work and other parts of society should be strengthened and renewed. The Conference of the Ministers of Education of African Member States – MINEDAF VIII (2002) emphasized this, too, when the participants said that there must be a commitment to systematic assessment if the objective appraisal of the quality of education is to become a reality in Africa.

Overall, lecturers interacted with all sources of information listed. This means that universities are not faced with the issue of initiating interactions, but with facilitating them to improve their quality. This also means that universities recognize themselves as part of an interactive system as stated by Bandura (ibid). They therefore need to systematically take into account trends in the world of work and in the scientific, technological, and economic sectors in order to respond to the work requirements.

d) The Relationship between Lecturers' Interaction with Sources of Information and their Lecturers') Rating of Flow of Information on Technological Changes to their Profession

A Kruskal-Wallis test was conducted comparing lecturers' interaction with sources of information and their rate of flow of information on technological changes in their profession. Table 4 shows the output. The output in Table 4, at .05 level of significance, shows no significant difference between lecturers experiencing different rates of flow of information and their interaction with various sources of information in the environment. The flow of information did not seem to influence the lecturers' information-seeking bid.

e) Lecturers' Response to Information from Sources of Information on Educational Technology

Universities, as open systems, are expected to receive and process information from their environments. They respond to the information in order to regulate their activities and be acceptable to these environments. Similarly, lecturers interact with various sources of information from their environments, gather information, and act on the information. This is the core of responsiveness – acting on information gathered in order to meet the educational technology needs of the graduate teachers' work place. In this study, the lecturers were asked

to respond on how they respond to information from sources of information on educational technology. Their responses have been presented in Table 5.

From the findings presented in Table 5, it was noted that the highest level of response to the information from the various sources of information is strengthening Micro Teaching component (85%). Micro Teaching is a practical course where students prepare and use media materials, practice skills they are taught, and operate and use various technologies to which they have been exposed. During this time, subject methods specialists guide the students appropriately. From the interaction they have had with teachers in the field and other sources of information named earlier, the subject methods specialists are able to demonstrate and strengthen educational technology use to a small group of students. This responsive act shows that the subject methods specialists understand their obligations in regularly updating curricula, teaching methods and learning approaches to ensure that graduates have knowledge and skills relevant for current and future labor market demands (Materu, 2007). It is also noted that lecturers review course curricula to reflect changes (77.5%), request Heads of Department (HOD) to purchase new equipment (72.5%), adopt suggestions to change educational technology use (72.5%), and strengthen research in educational technology (70%). This means that lecturers are continuously evaluating their curricula to incorporate changes taking place, that they accept suggestions from the sources of information in the environment, and that they are able to decipher information on their areas of specialisation to their HODs.

The findings also indicate there was weak (47.5%) response in relation to partnering with stakeholders for assistance, improving existing educational technologies (52.5%), and forecasting changes and preparing for them (57.5%). This could be because of heavy workload on the part of the lecturers so that they leave collaborations to university administrators. It could also be because of university structures that have other staff acquire and maintain the educational technologies, or the poor flow of information into the lecturers' profession which inhibits the response process. The fact that lecturers are not able to forecast changes and prepare for them is in itself an indicator of a major threat to teacher education program in Kenya; universities engaging in teacher education need to re-think their information-gathering mechanisms in order to supply the labor market with teachers able to do the work assigned to them. This is because, as Sutton (1988) posits, organizations scan the environment in order to understand the external forces of change so that they may develop effective responses which secure or improve their position in the future. They scan in

order to avoid surprises, identify threats and opportunities, gain competitive advantage, and improve long-term and short-term planning.

Conclusion

The findings revealed that the flow of information in the lecturers' profession was slow. This made it difficult for the lecturers to forecast the future and prepare for it and meant that they could not keep in pace with technological changes taking place in the graduate teachers' work environment. It is noted that creating the future is possible if relevant information is gathered and assessed for use in decision making. If such a scenario as was found in this study persists, lecturers would find themselves in a 'technological generation gap' yet they are expected to produce graduates teachers who are technologically competent as well as technologically relevant. Eventually, graduate teachers will require re-training in the area of technology.

Another finding from this study was that lecturers are engaged in information seeking as they interact with teachers in the field, student teachers on Teaching Practice, and postgraduate research at the universities. It is yet to be investigated whether there is a formal way of analyzing research reports with a view to improving teacher education based on research findings. This study also observed low levels of interaction with sources of information such as media, head teachers, parents, KIE, tracer research reports, and university mechanisms of reporting from schools. The lowest mean scores were observed in university mechanisms and head teachers. This would be an indicator of the lack of partnership with school heads, and of a commitment by the university administration to have formal mechanisms of reporting from schools. That interaction with schools and other institutions that absorb graduate teachers is important needs not be overemphasized.

On information seeking patterns, this study noted higher informal levels of lecturer-interactions with sources of information - with teachers in the field, postgraduate research postgraduate research, and student teachers during and after Teaching Practice. Interaction levels with head teachers, parents, the KIE, tracer research, and university mechanisms of reporting from schools, which could all be classified as formal, were found to be low. It can therefore be reported that lecturers engaged more in informal patterns of information seeking than in formal patterns.

This study also found that there was no significant relationship between filtering of information into the lecturers' profession and the lecturers' interaction with sources of information. This meant that lecturers had an intrinsic motivation to interact with the sources of information and gather information, independent of the rate of filtering of information into

their profession. It was therefore clear that lecturers appreciated the use of educational technology and information gathering through interactions with various sources of information. What could be limiting the lecturers' extents of use and interaction would be factors within the teacher education university systems. Their intrinsic motivation required to be nurtured through formal institutional recognition and facilitation.

Teacher education universities need to maintain a watchful alertness of all changes taking place in the universities' environment. This will assure them of appropriate transformation processes for their graduate teachers and consequently outputs that are acceptable in the labor market. This can be achieved through communication structures that connect all relevant stakeholders in teacher education, which will consequently enable them to identify challenges relating to use of educational technology for both students and lecturers and deal with them.

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Table 1 Lecturers' Rating of Flow of Information on Technological Changes in the Graduate Teachers' Work Environment into their (Lecturers') Profession

	Frequencies					Means	
	Very fast	Fast	Un-decided	Slow	Very Slow		
	F %	F %	F %	F %	F %	Mean	SD
Rate of flow of information	4 10.0	16 40.0	4 10.0	12 30.0	4 10.0	3.1000	1.2362

Table 2 Kruskal-Wallis Test: Lecturers' Attitude and Flow of Information

Statement on role of educational technology	**Chi-Square**	**df**	**Asymp. Sign.**
ET supports high quality professional development	10.80	4	.029
ET increases the student teacher's motivation, achievement, and competence	2.963	4	.564
ET increases the lecturer's ability to teach	8.045	4	.090
ET enables adequate preparation	5.141	4	.273
ET allows interaction between the student teacher and the lecturer	1.973	4	.741

a Kruskal Wallis Test
b Grouping Variable: Lecturers' rating of flow of information on technological changes to their profession

Table 3 Lecturers' Interaction with Sources of Information on the Use of Educational Technology in Schools

Sources of information	Frequency of interaction					Means	
	Most Fre-quent	Fre-quent	Un-decided	Some-times	Never		
	F %	F %	F %	F %	F %	Mean	SD
Media	2 5.0	14 35.0	4 10.0	11 27.5	9 22.5	2.7250	1.3006
Interaction with head teachers	0 0	6 15.0	4 10.0	24 60.0	6 15.0	2.2500	.8987
Interaction with teachers in the field	8 20.0	22 55.0	2 5.0	7 17.5	1 2.5	3.7250	1.0619
Interaction with parents	3 7.5	9 22.5	11 27.5	12 30.0	5 12.5	2.8250	1.1522
Interaction with the KIE	1 2.5	12 30.0	8 20.0	10 25.0	9 22.5	2.6500	1.2100
Feedback from students after Teaching Practice	6 15.0	18 45.0	5 12.5	10 25.0	1 2.5	3.4500	1.1082
Tracer research reports	4 10.0	7 17.5	11 27.5	14 35.0	4 10.0	2.8250	1.1522
University mechanisms of reporting from schools	1 2.5	10 25.0	12 30.0	10 25.0	7 17.5	2.7000	1.1140
Postgraduate research at the university	3 7.5	25 62.5	7 17.5	3 7.5	2 5.0	3.6000	.9282
Assessments during Teaching Practice	10 25.0	17 42.5	7 17.5	5 12.5	1 2.5	3.7500	1.0561

Table 4 Kruskal-Wallis Test: Lecturers' Interaction and Flow of Information

Sources of information	Chi-Square	df	Asymp. Sign.
Media	1.022	4	.906
Head teachers	4.825	4	.306
Teachers in the field	8.881	4	.064
Parents	4.689	4	.321
KIE	7.761	4	.101
Feedback from students after T.P.	5.810	4	.214
Tracer research reports	8.391	4	.078
University mechanism of reporting from schools	1.278	4	.865
Postgraduate research at the university	7.913	4	.095
Assessments during T.P.	2.528	4	.640

Table 5 Lecturers' Response to Information from Sources of Information on Educational Technology

Response	Frequencies of response								Means	
	Very frequently used		Frequently used		Undecided		Rarely		Never			
	F	%	F	%	F	%	F	%	F	%	Mean	SD
Adopt suggestions to change educational technology use	14	35.0	15	37.5	4	10.0	7	17.5	0	0	3.9000	1.0813
Strengthen Micro Teaching component	11	27.5	23	57.5	4	10.0	2	5.0	0	0	4.0750	.7642
Request HOD to purchase new equipment	12	30.0	17	42.5	2	5.0	9	22.5	0	0	3.8000	1.1140
Improve existing educational technologies	2	5.0	19	47.5	4	10.0	15	37.5	0	0	3.2000	1.0178
Partner with stakeholders for assistance	7	17.5	12	30.0	12	30.0	9	22.5	0	0	3.4250	1.0350
Review course curricula to reflect changes	14	35.0	17	42.5	3	7.5	6	15.0	0	0	3.9750	1.0250
Strengthen research in educational technology	9	22.5	19	47.5	3	7.5	9	22.5	0	0	3.6000	1.1277
Forecast changes and prepare for them	2	5.0	21	52.5	3	7.5	14	35.0	0	0	3.2750	1.0124