# Frequency of Use of Information and Communication Technology Equipment by Secondary School Heads and Teachers in Nandi and Uasin Gishu Counties, Kenya

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## Abstract

Information and Communication Technologies (ICTs) generally refer to landline and cellular telephones, wireless technologies, computers, Internet, computer software and hardware, as well as older communication technologies such as radio and television. The study examined the frequency of use of ICT equipment by secondary school heads and teachers in Nandi and Uasin Gishu counties, Kenya. The study employed a descriptive survey research design. All the 8 districts of Nandi and Uasin Gishu Counties were included in the study. A total of 63 schools with functional ICTs were purposively selected and, in each school, one class teacher, 2 subject teachers and 2 heads of department were selected using stratified random sampling to give a total of 315 teachers. All head teachers from each of the 63 schools were selected through purposive sampling. The total sample of the study was, therefore, 378 respondents. Triangulation approach was employed in which both qualitative and quantitative data were obtained and analysed. The main data collection techniques included the use of two questionnaires for teachers and head teachers and an interview schedule that was administered to the head teachers. Data was analysed using SPSS Version 17 and presented through descriptive statistics by use of frequencies and tables. The significance of relationships and differences of variables were tested using Pearson Correlation, Multiple Regression and Independent Samples T-test. From the study findings, the most utilised ICTs in schools were the printer, photocopier and computer while the curriculum management activity that highly utilised the use of ICT was the preparation of and the analysis of exams. This implies that ICTs in schools were mostly used as gadgets for typing and producing exam materials. Little seems to have been done in the utilisation of ICTs for curriculum delivery and the management of data that could be utilised for informing decision making. It is recommended that ICT trainers need to broaden the users' understanding of the concept of ICT integration to into the management of curriculum in secondary schools. Most head teachers and teachers understood integration of ICT to mean the training of users on ICTs in order for them to be able to type and produce teaching and learning materials.

## 1. INTRODUCTION

According to the African Information Society Initiative (AISI) studies, sponsored by the Economic Commission for Africa (ECA), the ICT sector is seen as a gamut of industries and service activities,

including Internet service provision, telecommunication equipment and services, information technology (IT) equipment and services, media and broadcasting, libraries and documentation centres, commercial information providers, network-based information services and other related information and communication activities (Wariga & Waema, 2005).

Whatever the definition, it is believed that ICTs generally refer to landline and cellular telephones, wireless technologies, computers, Internet, computer software and hardware, as well as older communication technologies such as radio and television. Aduda and Ohaga (2004) say that ICTs are "all hardware, software and services that relate to information processing and handling, communication, as well as all business activities that depend substantially on the above". The use of ICTs to supplement traditional pedagogical and school management practices is what is referred to as ICT integration in education.

The term ICT involves computing and networking facilities; such as computers, fixed line telecommunications, mobile phones and other wireless networks, broadband, specialized applications devices, internet, satellite communications and other networking technologies – that link together network devices, enabling people in organizations and the public at large to communicate and share information (Association of Progressive Communications [APC], 2007). Digital Strategy (2007) points out that information and communication have become an integral part of modern society, such that 'information + communication = knowledge'. It adds that ICT has a significant effect on production in most industries, including education, as it drives innovation, cuts costs, boosts returns and helps small organizations including schools to overcome limitations of size and establish a global presence.

In recent years, there has been a ground swell of interest of how computers and Internet can best be harnessed to improve the efficiency and effectiveness of education at all levels and in both formal and non-formal settings. But ICTs are more than just these technologies; older technologies such as the telephone, radio and television, although now given less attention, have a longer and richer history as instructional tools (Cuban, 1986). For instance, radio and television have for over forty years been used for open and distance learning, although print remains the cheapest, most accessible and, therefore, most dominant delivery mechanism in both developed and developing countries (Potashnik & Capper, 2002).

The use of Internet and computers is still in its infancy in developing countries, due to limited infrastructure and the attendant high costs. Moreover, different technologies are typically used in combination rather than as the sole curriculum delivery mechanism. For instance, the Kothmale Community Radio Internet uses both radio broadcasts and computer and Internet technologies to facilitate the sharing of information and, provide educational opportunities in a rural community in Sri Lanka (Taghioff, 2001). Commonwealth of Learning (2002) reports that The Open University of United Kingdom (UKOU), established in 1969 as the first educational institution in the world wholly dedicated to open and distance learning, still relies heavily on print-based materials supplemented by radio, television and, in recent years, online programming. Similarly, the Indira Gandhi National Open University in India combines the use of print, recorded audio and video, radio and television broadcasts, and audio conferencing technologies to deliver its contents.

In the school context, ICTs have the potential to play a powerful role in enhancing the methods and environment of learning and preparing students to acquire competencies and social skills fundamental for competing in emerging global knowledge economy. Haddad and Wadi (2004) point out that ICTs, if well utilized in the classroom, have the potential to enhance the learning process through motivation and engaging students in learning, bringing abstract concepts to life, fostering inquiry and exploration, allowing students to use information acquired to solve problems, formulation of new problems and explaining the world around them. It also provides access to worldwide and local information sources, provides a means to communication, sharing research and joint projects across geographical borders. Alongside the enhancement of teaching and learning, ICT can also provide an effective management tool to be used by head teachers to enhance school administration. The Journal of Research on Computing in Education

(1991) indicates that school Management Information Systems (MIS) are being designed and implemented to provide educational administrators with new tools to support them in a variety of activities such as grade and attendance placement in classes; teachers' allocation to classes; construction of school time-tables and examination schedules, assessment and disbursement of resources; follow up on the implementation of discussions; analysis of teacher and school achievements, as well as automated office tools such as e-mail spreadsheets, automated follow up of decisions, digital telephones and desktop publishing.

## 1.1 History of ICTs in Education in Kenya

According to the USAID (2006), ICTs was introduced in the Kenya education sector in 1968 when the Kenya Examinations Council (KNEC) started using computers for marking Certificate of Primary Examinations (CPE). The University of Nairobi followed suit in the 1970s with the acquisition of computers in form of massive mainframes, for purposes of analysing research data for the university and other institutions across the country. Perhaps the traditional use of ICTs in education has been the adoption of the Interactive Radio Instruction (IRI) to reinforce classroom teaching. Kenya has had a long history of educational broadcasts dating back to pre-independence days. Back then, school broadcasts were part of the Voice of Kenya. In 1975, the broadcasts were moved to the Kenya Institute of Education (KIE) under the Education Media Service (EMS). The broadcasts were intended to supplement school activities by providing an additional resource for teachers and students. In 2002, KIE entered into a relationship with world space to receive the broadcasts to schools. The World Space provided special receivers to receive their satellite signal. To date, about 11,000 receivers have been distributed to schools that are listening to the broadcasts.

The formal introduction of computers into secondary schools was done in 1982, when the Ministry of Education approved a pilot project on the use of computers in school starting with the Aga Khan Academy, a private secondary school in Nairobi. These were mainly used for computer literacy among students (Kavagi, 2001). From late 1980s, more secondary schools acquired computers partly due to pressure from stakeholders particularly parents, communities and even politicians who wanted to see their schools among those with computers. Most of the computers were donations by stakeholders as a complementary measure, to the efforts made by the Ministry of Education. From studies done, it emerges that the overriding rationale for introducing computer to Kenyan secondary schools was to train students to equip them with computer literacy skills and, for the coverage of Kenya Certificate of Education (KCSE) computer studies syllabus (Kavagi, 2001). This means that there has been little emphasis on the use of computers as tools to enhance teaching, learning and management practices.

## 1.2 Rationale for ICT Integration in Schools

Several writers have identified various reasons for introducing ICTs in schools. Hawkridge (1990) summarizes these in four rationales. The first one is the *social rationale* which is founded on the basis that children should be prepared to function adequately as citizens in a society permeated by technologies. The *vocational rationale* assumes that children should be prepared to function as professional workers in a technological society. This rationale is called vocational to clearly distinguish it from the social rationale. The *pedagogical rationale* points out that ICT may improve the instructional process and learning outcomes while the *catalytic rationale* advocates that the use of ICT may accelerate other educational innovations such as more emphasis in the teaching and learning processes that emphasise more on information handling, decision making and problem solving and less on memorizing facts. This rationale refers to the possibility that schools can be changed for the better by the introduction of new technologies.

Hawkridge (1990) further refers to possible effects such as improved administration and managerial efficiency, and more emphasis on students' learning by collaborating rather than by competing. In this

approach, ICT is seen as a catalyst that enables desired change in education to occur. He also points to two other rationales which he says have little support in education. One is the *information technology rationale*, which supports the idea of stimulating a national computer industry by placing at the government's expense large numbers of nationally purchased or assembled computers in the schools. Secondly, *cost effectiveness rationale* argues that ICTs can reduce the cost of education drastically as they will allow for the reduction in the number of teachers. This rationale indeed has some validity in the domain of corporate training in business and industry but is not really supported in formal education.

In addition, Brody (1998) distinguishes the *opportunistic rationale* consisting of the expectation that the use of ICT in schools may contribute to attracting more students in schools. Anderson and Collins (1993) point to a rationale which is specifically popular, namely 'functionality' perspective, which implies that students in schools need to learn to use ICT in a way which is functional for the many different tasks they are confronted with. Such a perspective refers to the use of ICT as a tool for writing (word processing) and data capture and analysis (spreadsheets). It is important to note that it is not a single rationale which guides policy makers. Often two or three of these rationales are simultaneously referred to as the starting points for policies at whatever level. On the other hand, the selection of one or more rationales as being the dominant ones may determine to a large extend the implementation strategies as well as the budgets needed.

One of the many challenges facing developing countries today is that of preparing their societies and institutions for globalisation and information and communication revolution. Policy makers, business executives, NGO activists, academics and ordinary citizens are increasingly concerned with the need to make their societies competitive in the emergent knowledge based economy. Globalisation and technological change- processes that have accelerated over the past fifteen years – have created a new global economy "powered by technology, fuelled by information and driven by knowledge" (US Department of Labour, 1999). The emergence of this new global economy has serious implications for the nature and purpose of educational institutions. As the half-life of information continues to shrink and access to information continues to grow exponentially, schools cannot remain mere venues for transmission of a prescribed set of information from teacher to student over a fixed period of time. Rather, schools must promote "learning to learn: i.e., the acquisition of knowledge and skills that make possible continuous learning over lifetime" (Thornburg, 2000).

In this regard, the Government of Kenya puts a lot of emphasis on the importance of integrating ICT in Education. GOK (2006) emphasizes that in the current globalised economy, a country requires an ICT literate workforce that will enhance its participation in the knowledge economy.  ICT in education, therefore, is the natural platform for equipping nations with ICT skills for dynamic and sustainable economic growth. Any country that fails to integrate ICT risks serious marginalization on the global scene.

GOK (2005) points out that ICT skills play a major role in promoting the economic development of a country. The Kenya Government adds that many of the gains in the developed world economies over the past two decades can, to a great extent, be attributed to the impact of ICT. This observation is credible, since the growing economic disparity between the developed and developing countries may be explained to a large extent by the corresponding science and technology gap between these two groups of countries. There is, therefore, need for developing countries such as Kenya to borrow best practices from developed countries and utilise them to improve their economies. *Sessional Paper No 1* (RoK, 2005) further reiterates that ICT has a direct role to play in education and if appropriately used, can bring benefits to the classroom as well as education and training processes in general. Its use will provide new opportunities for teaching and learning, including offering opportunity for more student centred teaching, opportunity for teacher-to-teacher, and student-to-student communication and collaboration, greater opportunities for multiple technologies delivered by teachers, creating greater enthusiasm for learning for students, and offering access to a wider range of courses.

ICT, therefore, provides a unique opportunity for the developing world to accelerate its development efforts. However, there are many constraints and difficulties that hinder the fast development and effective application of ICT in developing countries. Munasinghe (2010) observed that some of these challenges include the degree of standardization of software, hardware and databases, adequacy of services and maintenance facilities; technically qualified manpower and access to standard software; quality infrastructure services and making conditions, including power supply, telecommunication facilities and control of temperature, dust, vibration, insect, pest etc and protection of intellectual property right patents and copyrights.

Munasinghe (2010) further points out that the same challenges facing the developing countries today also inflicted developed countries on the onset of the digital revolution but have been able to overcome some of the problems. He traces the digital revolution from the transition from agricultural to the industrial phase around 17$^{th}$ century, which involved the control and use of energy for manufacturing and protection. The recent era of development of electronics and other modern technologies began in the 1950s and has accelerated even more sharply. The intrinsic capability of the modern day computer to transform human thinking power provides the driving force for today's information based revolution.

While the industrialized countries are already deeply involved in ICT revolution, the developing countries are still on the periphery. Whether they like it or not, developing countries will be compelled to live with these technological advances and their widespread implications. Either they adapt and use ICT by radically looking for ways of overcoming the challenges associated with ICT integration or they will lag behind further in their socio-economic development (Munasinghe, 2010).

There is little doubt that ICTs can change a country's development opportunities. How Kenya manages the computer driven process of change will influence whether her development goals will be achieved. The structuring of the process will determine who will benefit from the technology and in what ways. This change process requires systematic consideration in the formulation and implementation of national ICT policy.

## 1.3 Statement of the Problem

The study set out to investigate the factors influencing ICT integration into the management of curriculum in secondary schools in Nandi and Uasin Gishu Counties. The study was motivated by the realization that many schools in the counties had installed computers through various initiatives spearheaded by the government, development partners and individual schools. Reports at the Ministry of Education indicate that less than 20 per cent of the schools in the Province have computer labs, which is way below the 80 per cent targeted by the Ministry of Education nationwide (MOE, 2006). The computers are also not used for the purpose stipulated in the *Sessional Paper No. 1* of 2005, that is, for enhancing teaching, learning and management but mostly to teach computer studies. There was, therefore, need to find out which factors led to the low level of ICT integration in schools despite the efforts put in place to egiup schools with computers.

The study was also motivated by a USAID report of 2006 on *ICTs in Education Options Paper*, which notes that despite the initiatives put in place to install ICTs in schools, most of the equipment lie in computer labs unused or are used merely for computer literacy and teaching computer studies rather than as a tools for enhancing curriculum management. The study explored how the initiatives enlisted in the ICT integration documents, such as the *National ICT Strategy for Education and Training* and *Sessional Paper No. 1 of 2005* are being received in schools and the manner and extent to which they are being translated to practice in order to verify whether or not implementation is being done as envisaged.

The study examined the experiences of head teachers and teachers in order to find out the challenges they might be facing while using ICTs to enhance curriculum management. Their perceptions were sought in order to determine their attitudes towards ICT integration and how these attitudes might influence the level of ICT integration practices in their schools. This kind of examination would help in unearthing the factors that actually influence the effective use of ICTs as tools for managing curriculum in secondary schools in Kenya.

## 1.4 Limitations of the Study

The study was hindered by the fact that few studies have been conducted about ICT integration efforts in Kenya and the developing countries in general. This limitation was surmounted by use of internet sources, sectoral evaluation reports and documents by government and private agencies.

## 2. MATERIALS AND METHODS

The study utilised a descriptive survey research design. It targeted head teachers and teachers in secondary schools in Nandi and Uasin Gishu Counties of Rift Valley Province. These counties are composed of 8 districts. Using EMIS data obtained at the MOE headquarters, 63 schools with the most functional ICTs in the two counties were purposively selected for the study. The number of teachers in these schools was found to be 1890. The target population was, therefore, 63 head teachers and 1890 teachers. The study targeted only schools which had ICTs that were being used for curriculum management.

All the 63 head teachers were purposively sampled. The stratified random sampling technique was used in selecting the subjects because the unit of analysis consists of sub groups or strata that may differ in characteristics. The strata that formed the sample unit included two Heads of Department (HODs) and two subject teachers and a class teacher. These groups constitute groups that may be using computers in secondary schools in different ways for curriculum management purposes. HODs are the curriculum coordinators and, therefore, play crucial roles in curriculum management in secondary schools. This is why they were included as strata in the study. Subject teachers are the curriculum implementers at the classroom level and class teachers are curriculum managers within their classes. Purposive sampling was used to select the head teachers. The head teachers are the chief curriculum managers and also the chief executives in their schools and, therefore, their inclusion in the study was paramount. In order to raise the required sample, six respondents were selected per school, that is, one head teacher selected purposively and five teachers selected through stratified random sampling to give a 63 head teachers and 315 teachers and, therefore, a total of 378 respondents. This means that 63 schools had to be selected in order to raise the sample of 315 respondents.

This study utilised primary data collected using two questionnaires, one for the head teachers and another for teachers. The study also utilised open-ended interview schedule. This method was used for 19(30%) of the head teachers. After the quantitative data was edited, cleaned and entered, descriptive analysis was done through the calculation of frequencies of responses. Percentages and the means of the responses were then calculated and scores ranked in order to determine which responses occurred more frequently. Pearson Product Moment Correlation and Regression was then used to test whether or not relationships were statistically significant. The independent T-Test was used to test whether or not differences between respondents' responses were statistically significant.

The challenge in the analysis of qualitative data is to make sense of massive amounts of data, reduce the volume of information, identify significant patterns and construct a framework for communicating the essence of what the data reveal (Patton, 1990). The first step that was used in analyzing qualitative data involved organizing the data which included notes from interviews. Interview data was organized by

grouping answers together across respondents. Once the data had been organised, the researcher moved to the second stage in data analysis, which is description and interpretation of the responses. Denzin and Lincoln (2005) noted that interpretation involves explaining the findings, answering 'why' questions, attaching significance to particular results, and putting patterns into an analytical framework. It is tempting to rush into the creative work of interpreting the data before doing the detailed hard work of putting coherent answers to major descriptive question. The discipline and rigour of qualitative analysis depends on presenting solid descriptive data in such a way that others reading the results can understand and draw their own interpretation.

## 4. RESULTS AND DISCUSSION

### Frequency of Use of ICTs

In order to determine the extent of ICT integration into the management of curriculum in secondary schools, the frequency of use of various ICTs by teachers and head teachers was sought. This was meant to establish how often the users' utilised the available ICTs for the purposes of management of the school curriculum. A high frequency of use would indicate a high level of ICT integration. In order to achieve this objective, a five point Likert scale ranging from 1-5, where 1 means 'always' and 5 means 'never', was used; where users were asked to indicate how frequently they utilised a list of ICTs. For the purpose of discussion, those who indicated 'always' and 'often' were said to have used the ICT frequently while these who indicate 'sometimes', 'rarely' and 'never' were said to have used the ICT rarely. The ICTs that the users were asked to rate were those relevant for the purposes of managing curriculum. These included the printer, photocopier, computer, mobile phone, DVD, Internet, radio and LCD projector. Mean responses were calculated and used to rank the ICTs in terms of frequency of use. Table 1 shows the status of the integration of the various ICTs in the management of the curriculum.

**Table 1:** Frequency of use of Various ICTs to Manage Curriculum

| ICT | Always | Often | Sometimes | Rarely | Never | | |
|---|---|---|---|---|---|---|---|
| N=285 | F(%) | F(%) | F(%) | F(%) | F(%) | Mean | Rank |
| Printer | 216(63.2) | 80(23.4) | 23(6.7) | 11(3.2) | 12(3.5) | 1.61 | 1 |
| Photocopier | 203(59.4) | 83(24.3) | 25(7.3) | 7(2) | 24(7) | 1.73 | 2 |
| Computer | 108(31.6) | 87(25.4) | 84(24.6) | 42(12.3) | 21(6.1) | 2.36 | 3 |
| Mobile phone | 94(27.5) | 64(18.7) | 65(19.0) | 61(17.8) | 58(17.0) | 2.78 | 4 |
| Internet | 22(6.4) | 44(12.9) | 120(35.1) | 82(24) | 74(21.6) | 3.42 | 5 |
| DVD | 31(9.1) | 34(9.9) | 88(25.7) | 88(25.7) | 101(29.5) | 3.57 | 6 |
| Radio | 7(2) | 27(7.9) | 77(22.5) | 95(27.8) | 136(39.8) | 3.95 | 7 |
| Projector | 1(0.3) | 4(1.2) | 26(7.6) | 51(14.9) | 260(76) | 4.65 | 8 |

**Key:**
*Measurement scale ranges between 1 and 5 where: 1=Always, 2=Often, 3=Sometimes, 4=Rarely, 5=Never*

### Frequency of Use of Photocopier

Alongside the printer, the photocopier also emerged as a highly utilised ICT tool in all the schools under study. The ICT also ranked high in popularity and was the second most frequently used ICT after the printer. A large majority (83.7%) of the respondents used it frequently while only 9% rarely used it. The

mean was 1.73 and was ranked second in the frequency of use after the printer indicating a high level of use. This popularity of the photocopier could be attributed to its importance in the production of examination and teaching materials in schools. It is also widely used for the production of school records and correspondences.

### Frequency of Use of Computer

The computer should be the main ICT equipment to be considered when planning and implementing any ICT integration process. In fact the first thing that comes to the mind of many when discussing the integration of ICT into the management of curriculum is the use of the computer. In many instances, it is usually erroneously widely believed that ICT integration is the same thing as the use of computers alone. It is for this importance attached to computers, which perhaps can be linked to its high frequency of use in schools as revealed by the results of this study. The results revealed that a majority (57%) frequently used it while 43% rarely used it. The frequencies for use of the computer registered an average mean of 2.36. Although the computer was ranked the third most used ICT in the range of eight ICTs that were recorded, the results revealed a worrying trend because it implies that almost half of the respondents have a rare opportunity to use computers for the management of curriculum in their schools. This could perhaps be due to their lack of exposure to ICTs or their inability to use them.

### Frequency of Use of Mobile Phone

The mobile phone is arguably the most widespread and easily available ICT tool in Kenya today. This wide usage of mobile phones in general does not, however, translate to a high frequency of use of the mobile phone as a tool for managing curriculum. The gadget scored a mean of 2.78 showing that it had an average level of use. The majority (53.8%) used it frequently while 46.2% rarely used it. This trend is worrying given that the mobile phone is one of the most easily available ICTs. There is need to popularise its use as a tool for managing curriculum by school managers.

### Frequency of Use of DVD

The DVD machine is one of the newer technologies that are rapidly replacing the VCR. The DVD is an ICT equipment that can effectively be utilised for efficient delivery of curriculum. DVD shows can be used as teaching aids to stimulate interesting studying environments. The study, however, revealed that the gadget was used moderately among head teachers and teachers as an ICT for managing curriculum. The results indicated that a majority (53.8%) rarely used it and 46.2% used it frequently. This level of use was slightly below average given that the mean score of its frequency of use was 3.57. This is a worrying scenario given that the DVD is one of the technologies which if well harnessed can be very useful in reinforcing teaching and learning in schools.

### Frequency of Use of Internet

The Internet is another ICT tool that needs to be seriously developed as a means of managing curriculum in secondary schools. It is particularly useful in the area of teacher preparation and research. It can also be utilised in information dissemination and exchange between head teachers, teachers and students. Despite its potential usefulness in the management of teaching and learning, it was worrying to observe that only a small group (19.3%) of head teachers and teachers used the Internet frequently in managing curriculum in their schools, while a large majority (80.7%) rarely used the Internet. With a mean frequency of 3.42, the use of the Internet as an ICT for managing curriculum schools registered a low level of use.

### Frequency of Use of Radio

Radio broadcasts is one of the older ICTs that are still relevant in the dissemination of teaching and learning in schools. The Kenya Institute of Education (KIE) transmits radio broadcasts, which can be used in schools to supplement classroom lessons. The study however revealed that majority of the head teachers and teachers (80.6%) rarely used the radio, while only 19.4% used it frequently. The level of use of the radio among the respondents was low with a mean of 3.42.

### Frequency of Use of Projector

The projector is one of the latest ICT which is used in combination with the computer as a tool of curriculum delivery. It can be a very effective mode of lesson delivery and can be used in place of the chalkboard. The level of use of this ICT was low(M=4.65) making it the least used ICT in the schools with only 4.2% using it frequently and a large majority 95.8% rarely using it.

## 5. CONCLUSION AND RECOMMENDATIONS

The most utilised ICTs in schools were the printer, photocopier and computer while the curriculum management activity that highly utilised the use of ICT was the preparation of and the analysis of exams. This implies that ICTs in schools were mostly used as gadgets for typing and producing exam materials. Little seems to have been done in the utilisation of ICTs for curriculum delivery and the management of data that could be utilised for informed decision making.

ICT trainers need to broaden the users' understanding of the concept of ICT integration and its use in the management of curriculum in secondary schools. Most head teachers and teachers understood integration of ICT to mean the training of users on ICTs in order for them to be able to type and produce teaching and learning materials. The computers had been reduced to typewriters for typing and production of exams. ICTs should, therefore, be utilised more as tools that aid school curriculum implementers to make critical decisions that would enhance the efficiency of teaching and learning.

The government should prioritise the improvement of ICT infrastructure in secondary schools such as electricity, computers, and Internet connectivity; as they were cited by head teachers as the most significant factors influencing the successful integrating of ICT into the management of curriculum. Moreover, head teachers should consider characteristics of users such as age and experience and ICT training when allocating curriculum management duties requiring the integration of ICT, since a relationship was noted between these characteristics and the frequency of use of ICTs. The academic qualifications of the users per se should, however, not be used as a factor since it had no significant influence on the frequency if use of ICTs.

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