Information Quality, Communication Effectiveness, Technology Quality in influencing Intension and Actual Use of ICT for Tracking Administration of Malaria Drugs in health units in Ugandan. A Descriptive and Correlational Study.

E. James Kiggundu Ssegawa*

Faculty of Applied Sciences, Tam University, Uganda.

Abstract

Background:

The purpose of this study was to examine how information quality, communication effectiveness and technology quality influence intension and actual use of ICT in tracking administration of malaria drugs in health units in Uganda.

Methods:

Descriptive statistics and co-relational research design were used to determine the degree of occurrence and relationships. Pearson's cross product bivariate deviation and covariance including regression were used to determine how independent variables influence the intention and actual use of ICT in tracking administration of malaria drugs in health units.

Scope:

A survey was conducted onto 465 workers in health units of Masaka, Rakai, Kalungu and Kampala districts in central region of Uganda.

Findings:

Intrinsic information quality (IIQ), contextual information quality (CIQ) and representative information quality (RIQ) were adequate in public and private health units; Communication effectiveness was low because of using written documentation.. Medical staff had negative perceptions and attitude towards ICTs (mean = 2.29), lacked knowledge (mean = 3.26) and skills (mean = 3.15) of use hence affecting the quality of technology (mean = 3.12). There was a significant and strong linear positive correlation between information quality, communication effectiveness, quality of technology and tracking administration of malaria drugs well above 10% at the level of p = 0.01, while intension to use and actual use was well above 30%.

Conclusions:

Communication effectiveness has a positive and significant correlation with the intension and actual use of ICTs (B = 0.351). Information quality has very low impact on intention and actual use of ICT (Beta β = 0.042 in tracking of administration of malaria drugs in health units in Uganda. Technology quality has both a negative linear correlation (B = - 0.087), and influence on Intension and Actual Use of ICTs (β = - 0.050).

1. INTRODUCTION

Information Quality coined from data that has been processed to a designated meaning is conceived as a measure or metric(s) of its suitability, fitness for use, or value that it has and/or provided to the user(s) based on the variations hinged to those users and the uses of that information itself. As a matter of fitness, it must be accurately propounded to meet the necessity defined by the information quality [4], [6] dimensions which include; Intrinsic Information Quality (IIQ) which implies that the information the users need has an embedded own value, Contextual Information Quality (CIQ) which focuses on the information need that must be considered within the context of the task to be executed in terms of its amount so as to add value, and Representative Information Quality (RIQ) which puts emphasis on the importance of the tools (computer systems) which are used to store and provide access to that information (Yang *et.al*, 2001). The information quality hinged onto the characteristic description of its own dimension intrinsically explains its role in communication effectiveness based on the technology quality engaged in influencing intention and actual use of ICT for tracking the administration of drugs in health units in Ugandan. Effective communication represents a perspective that information fulfills the concept of sharing a common understanding for the involved parties in the communication process so that information flows well in both directions between the parties involved. Technology is a matter of how something is done or an approach to doing something the best way, the implied technological control metrics included accessibility, availability, reliability, speed (response time), and usability of technological resources that are measurable or the assumed quality. However other technology enhancement factors that were perceived to take a central role in affecting the technology to track malaria drugs are conceived to include percep-

tions and attitudes, knowledge and skills in the use of ICT (Ssegawa *et.al*, 2019).

2. METHODOLOGY

Descriptive and co-relational research designs were used on a sample of 393 qualified respondents of a total population of 465 including medical doctors, nurses, midwives, laboratory assistants, pharmacists, dispensers and clinicians from Masaka, Rakai, Kalungu and Kampala Districts having served for more than two years in that position were considered using clustering, simple random sampling, and purposive sampling method. Respondents were contacted first on the language used in their domain, particularly on vocabulary and semantics, and piloted the instrument where unexpected splashes were corrected before its real deployment. Data were analyzed using SPSS, and the research instrument was reliable at 0.9 with a construct validity index (CVI) of 0.66. Descriptive statistics were used during data analysis and Pearson's cross-product bivariate deviation and covariance was engaged to establish the extent of relationships between the variables for both Information Quality, Communication Effectiveness, and Technology Quality in influencing intention and actual use of ICT for tracking administration of drugs in health units in Ugandan.

3. RESULTS

The results depict the findings of the objectives which involved examining how Information Quality, Communication effectiveness, and Technology quality influence the intention and actual use of ICT in tracking the administration of malaria drugs in health units in Uganda.

3.1. INFORMATION QUALITY DIMENSIONS

Information quality is looked at based on the characteristics/attributes which describe the dimensions measurement which includes intrinsic information quality (IIQ), Contextual information quality (CIQ), and representative information quality (RIQ). Intrinsic Information Quality

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*Corresponding author.

Email address: ssegawaejames@gmail.com (E. James Kiggundu Ssegawa)

(IIQ) deals with the implication that the information users need has an embedded own value. The measurement of all the characteristics of the constructs based on the mean ranges described by their respective interpretations is shown below.

Mean Range	Interpretation	Description
5.00 – 4.21	Strongly Agree	Very Satisfactory
4.20 – 3.41	Agree	Satisfactory
3.40 – 2.61	Undecided (both are true)	Fair
2.60 – 1.81	Disagree	Un Satisfactory
1.80 – 1.00	Strongly Disagree	Very Satisfactory

3.2. *Intrinsic Information Quality (IIQ)*

Intrinsic Information Quality (IIQ) was measured based on Believability, Accurate, Reliability, Precision, Consistency, and Completeness. In terms of the characteristic of intrinsic information health workers receive during the administration of malaria drugs, results indicated that the majority believe that verbal is fairly (mean = 3.28, mode = 4.00) clear and acceptable (strongly agree at 16.0%, agree at 41.2% of the total response) for them to execute the designated routines. The fair representation of the verbal information health workers receive during the administration of malaria drugs implies that its believability appears more or less incredible to use during the provision of medical service to the patients. The assertion of clear and acceptable verbal communication appeared prominent on the side of public health units, however, those well above 30% were not agreeable to the idea. This was skewed negatively on the side of the private health units by - 0.286. However, well above 80% of the health workers (61.5% agree, 20.0% strongly agree) satisfactorily (mean = 3.91, mode = 4.00) receive accurate information from MoH in Uganda which helps them to carry out the right administration of drugs to patients. This appeared pronounced more in private health units than in public ones. This information was regarded as satisfactory (mean = 3.98, mode = 4.00) reliable, and in line with the guidelines on how to safely and ethically administer the drugs (agree 67.2%, strongly agree 20.7%). Nevertheless, the majority of the responses suggest that the precision of this information was fairly (mean = 3.37, mode

= 4.00), although, from different administrators for the same works, it is consistent. The contradiction in the veins of consistency reveals a CoV of 40.1% and positively skewed by 0.033 on the side of public health units than the private counterpart. This implies that the tools used to store and or / generate this information within public health units, therefore, do not support this dimension of information quality (they are more of manual systems represented by paper-based filing systems and or / similar ones). Further results reveal that 49.6% of health workers receive information in its completeness, that is to say, receiving all information from authorities to be used to take decisions in the execution of daily medical routines on malaria drugs, nevertheless, 33.8% implied that some information is lacking for purposes of a holistic decision during the execution of daily medical routines on malaria drugs.

3.3. *Contextual Information Quality (CIQ)*

Contextual Information Quality (CIQ) focuses on the information need that must be considered within the context of the task to be executed in terms of its amount so as to add value. It was measured based on information completeness, Content, semantics and understandability, semantics and understandability, Timeliness, and relevance. Contextualizing information so as to get the desired value during the administration of malaria drugs revealed that 58.3% of health workers (medical staff) give an elaborate and complete explanation when giving information about malaria drugs to patients (mode = 4.00), on the other hand, 17.8% don't. This implies that the information generally given by health units to malaria patients is satisfactorily (mean = 3.81) complete. These observations provide a binding link and or / conjunction between IIQ and CIQ which provides an understanding that the basic information needs are defined in the context of its application. Information completeness is exercised more in private health units than in public (skew index = - 1.016), this is attributed to the fact that these private health units use computerized systems for information and data banks.

The information health units receive and use for taking medical decisions was revealed to have satisfactory (mean = 3.77) good content (agree 60.3%, strongly agree 16.3%). Good content simply means information being able to satisfactorily provide value for the much-needed information requirement(s). This information is satisfactorily (mean = 3.73) understandable in terms of the semantics regardless of the variations in academic levels and the type of health unit (agree = 59.7% strong agree 15.5 %,). The management of health units generates this information timely and transmitted it promptly to the concerned health workers (agree 62.6%, strongly agree 11.7%) at the same time, it is relevant to support the actions of the health workers during the administration of malaria drugs. This scored a satisfactory rating (mean = 3.60) representing 52.1% of those who agreed and 14.4% strongly agreeable to the same. Generally, Contextual Information Quality (CIQ) as a dimension of information quality was rated satisfactory (mean = 3.71) to the administration of malaria drugs in health units/hospitals.

3.4. *Representative Information Quality (RIQ)*

Representative Information Quality (RIQ) puts emphasis on the importance of the tools (computer systems) which are used to store and provide access to that information in regard to the source or origin or authenticity, format/appearance, quantitativeness/sufficiency, and interpretability. The results revealed that 67.8% of the health workers as the majority receive information that is in line with their profession to support the administration of malaria drugs to patients. This information was described as original and has satisfactory medical authenticity (mean = 3.96). In the event that the construct/dimension of information quality looks at the tools of storage of this information, the originality and authenticity quality could have been attributed to the fact that storage platforms conform to the use of computers systems which facilitate information retrieval as a means accessing and regenerating in the form it was posted at storage, not very vulnerable to changes (integrity)

during access by users. This was very prominent in private health units than in public. The results further dedicate that the information exhibits a format and appearance which is understandable for communication during the administration of malaria drugs (agree 54.8%, strongly agree 19.7%, it is sufficient in terms of quantity (agree 60.4%) and interpretable by all health workers as majorly revealed by private health units (agree 66.4%). Generally, Representative Information Quality (RIQ) as a dimension of information quality was rated satisfactory (mean = 3.77) to the administration of malaria drugs in health units. Generally, the overall Intrinsic Information Quality (IIQ) (mean = 3.46), Contextual Information Quality (CIQ) (mean = 3.71), and Representative Information Quality (RIQ) (mean = 3.77) measure of information quality was satisfactory among public and private health units in tracking administration of malaria drugs in health units in Uganda.

3.5. *COMMUNICATION EFFECTIVENESS*

This was measured using flows of information, medium of communication, and mode of communication. Effective communication represents a perspective that information fulfills the concept of sharing a common understanding for the involved parties in the communication, thus, results reveal that information about the administration of malaria drugs flows well in both direction and easily share common ideas between the health workers and management of health units at all level of administration (agree 49.2%, strongly agree 22.7%). This suggests that communication is conducted well without disruptions or barriers using technologies that easily and quickly embrace it. Medium of communication reveals that 44.9% don't send requisitions and drug orders electronically to the ministry of health, but the too a small extent, 28.3% apply platforms like sites and telephone. The majority of health workers communicate face to face about issues concerning malaria drugs (mode = 4.00; agree 58.7%, strongly agree 13.9% of the total response) is a clear indication that ICTs are operationalized to a smaller extent

in the administration of malaria drugs in health units, thus use of written documents (a manual process) is the commonest method applied. In terms of the mode of communication, written communication takes 56.2% (agree) and 10.9% (strongly agree) both of which suggest the majority of the total response. Although a good number of health workers disagree (38.2%) with using telephones to share information in this case, 33.1% reveal application and sharing malaria drugs information because information posted in written form documents are not instant and arrive at health units at different times length (agree 67.7%). The slowed written information in form of document used in acknowledgment of receipt of pharmaceutical deliveries and supplies by management of health units revealed 63.2% (agreement), all this imply the potential for loss of information about malaria drugs deliveries, possibilities of changing the authentic drug records delivered resulting into drugs misrouting and disappearance, thus making drugs tracking difficult. In support of this notion, health workers make an understanding with patients for the quality of service (QoS) through dialogue (agree 30.5%, strongly agree 55.5%) for the much-needed service delivery. In general, Communication Effectiveness was satisfactory (mean = 3.52) and rated as slow because of using written documentation during the administration of malaria drugs in health units.

3.6. *TECHNOLOGY QUALITY*

This was measured using response time, accessibility/connectivity, availability, availability of power, the format of information delivered, and ease of use. In terms of the format of information shareable about malaria drug administration, results reveal that 35.4% receive SMS about the malarial drug from authorities as the fastest means (response time), although the majority embrace is written documentation method (43.6%). This implies that the technology was fairly (mean = 3.09) engaged in the cause of drug administration. This, therefore, suggests the reason for using paper-based forms from drug stores for tracking deliveries of drugs (agree 49.8%, strongly

agree 19.1%). Accessing media platforms was fair (mean = 3.00) by 35.5% for information about malaria drugs. Media communication was oscillating between connection (30.6%) and disconnection (35.7%). This could be a result of the fact that there was a lack of regular supply of power to many health units to facilitate regular connectivity and access and or/the ability to use the infrastructure for information access. This opinion was supported by the fact that there were irregularities in power connections by 34.9%. In cases of availability of power (31.8%) it was not clear whether the source was solar or electric. This also reflects that health workers were affected to interact with the electronic system for the intended purposes in malaria drug administration by 39.9%. In general, the level of the Quality of Technology employed during the administration of malaria drugs in health units was rated a fair performance (mean = 3.12) to what should have been considered effective.

Quality as a measure of the technology's effectiveness can also be envisaged in how its adoption addresses attitudinal elements of its users depending on the information needs in the dimensions of the perceived ease of use and what it can do when operationalized to offer services. This provides an appreciable link between the elements of measurement coined to explain the technology quality (section 3.30). Therefore, the supportive elements as a driver of technology quality have a bearing on attitudes and perceptions, knowledge of the use of ICTs, and skills in the actual use of these technologies. The results suggest that enjoyment of the technology (ICTs) by the health workers resonates by 33.9% for those who fairly enjoy and don't enjoy in their respective department (mean = 2.89, mode = 2.00) regardless of those who appeared stunted at 8.2%. This represents well that attitude plays an important hinge to resonate between like and dislikes of use [1]. Furthermore, attitudes and perceptions derive the thinking that ICTs should be used only in document management or in the departments of finance other than in real malaria drugs administration (15.7%), although the majority don't support this, 52.5% disagree with it.

The notion that ICTs systems should be applied by young health workers with little medical experience was not regarded as a negative perception and poor attitude (strongly disagreed 39.8% and disagree 32.8%) because ICTs being is assumed to increase levels of precision in the work requires high degrees of accuracy (strongly agree 44.7% agree 36.6% strongly). This suggests that ICTs are much preferred because these systems are merely fed with medical domains (knowledge) and are used as tools to process them in order to generate the much-needed output. The overall perception and attitudes about the ICTs systems in the administration of malaria drugs scored a fair ranking, with an average co-efficiency of variations of 50.2% as far as limiting the administration of malaria drugs during the malaria management processes. Thus, the more the technology is able to lessen the user biases one would have, the more its quality is described to satisfy the user's need.

As far as the knowledge of the use of ICTs in the administration of malaria drugs is concerned, results revealed that the majority of the health workers have difficulty in using ICTs (37.5%, Mode = 4.00) as compared to those whose competencies rise to 12.7%, although many can satisfactorily use programs such as Microsoft word, excel and PowerPoint (25.3%, agree = 34.2%), and they are able to storage, retrieval and making backups on other media platforms and or / secondary storage devices and peripherals (strongly agree = 28.3%, agree = 27.2%) which is a fair manifestation of basic skill [2] [5]. This suggests that the knowledge health workers have to use ICTs in the administration of malaria drugs in health units is fair to allow them to provide good services to the patients, but is a good start for them to do better. Skills to use computerized systems during the administration of malaria drugs in health units, results revealed that more than half of the health workers lack capacity because of lack of training. The training health workers get is a personal initiative which is also unsatisfactory (mean = 2.94, mode = 2.00), thus suggesting that health workers receive basic skills in simple computer applications that in the case of administration of malaria

drugs, should have gone beyond as far as processes that involve interacting with the system further like data manipulation, customizing, input processing and dissemination of medical data which is more than just having basic skills in office computer application. The ability of the health workers to access the Internet for information retrieval (24.6%, agree = 28.5%), builds on the skill to use the available gadgets when connected although this happens, a substantial number of them are unable to (disagree = 24.6%, strongly disagree = 16.5%). This disjunction could suggest that some of the health workers could be using mobile phones and similar technologies for the same service, because most of the health workers satisfactorily use Facebook and WhatsApp on their mobile phones (agree = 28.8%, agree = 42.3%). Sending and receiving data using emails was satisfactory (Strongly agree = 29.0%, agree = 33.7%). The results further revealed that the information health workers receive through the institutions' networks (LAN) is similar to that provided while using mobile phones, therefore appreciating the data consistency the technology provides to the available data. This implies that they can use the available Technologies (ICTs) for medical data storage and retrieval because they are reliable for decision-making during the management of malaria in the health environments. Nevertheless, when health workers are making drug requisitions to the MoH is not done electronically (Agree = 37.4%, strongly agree = 14.2%). This represents how institutional processes (business) are locally performed. The reporting systems of health units are more semi-manual, with no tailored computer packages for reporting both internally and to the ministry of health (agree 42.7%, strongly disagree 15.3%) Therefore the overall rating of computer skill in health workers use ICTs are fair (mean = 3.15) which apparently can affect successful administration of malaria drugs in health units using technology.

3.7. INTENTION TO USE AND ACTUAL USE OF ICT

The intention and actual use of ICTs is assumed among others to be guided by attitudes and per-

ceptions, knowledge to use ICTs, and the inherent skills users exhibit to engage the technology [5] for the designated output. Therefore, the concept intends to using ICT, was conceived to mean the major purpose for which users should really engage this technology. In this it was intended order to facilitate tracking information during the administration of malaria drugs in health units, the actual use meant the definite deployment and applications of ICTs, that is to say, how it is used to achieve the tracking of information during the administration of malaria drugs, the parameters as items which were coined included perceived ease of use, technology effectiveness, and skills exhibited by the users in this case health workers, the need to apply the technology, speed of the technology, sharing data and accuracy [7].

Table 1: Intention to Use and Actual use of ICT in tracking process for the administration of malaria drugs in health units / hospitals

Intention to Use and Actual use of ICT									
Construct Item	Response	Freq.	%age	Mean	Mode	Median	CoV %	Skewness	Interpretation
ICTs are easy to use while keeping records about malaria drugs	SA	66	25.9						
	A	120	47.1						
	UD	21	8.2	3.76	4.00	4.00	29.6	-0.864	Satisfactory
	D	38	14.9						
	SD	10	3.9						
ICTs are effective in processing data about drugs than using manual means	SA	67	25.8						
	A	126	48.5						
	UD	15	5.8	3.71	4.00	4.00	33.0	-1.006	Satisfactory
	D	28	10.8						
	SD	24	9.2						
We have the skills of using ICT systems to track malaria drugs	SA	24	9.6						
	A	57	22.8						
	UD	23	9.2	2.68	2.00	2.00	46.7	0.439	Fair
	D	107	42.8						
	SD	39	15.6						
ICTs are needed to execute tasks that are key in our daily operations	SA	78	31.3						
	A	123	49.4						
	UD	27	10.8	4.03	4.00	4.00	22.2	-0.973	Satisfactory
	D	19	7.6						
	SD	2	0.8						
ICTs generally increase the speed at which work is done at our stations	SA	100	39.1						
	A	104	40.6						
	UD	25	9.8	4.07	4.00	4.00	24.2	-1.039	Satisfactory
	D	24	9.4						
	SD	3	1.2						
	SA	69	26.6	3.47	4.00	4.00	37.5	-0.407	

Table 1 (Continuation) : Intention to Use and Actual use of ICT in tracking process for the administration of malaria drugs in health units / hospitals.

Construct Item	Response	Freq.	%age	Mean	Mode	Median	CoV %	Skewness	Interpretation
We use ICTs to share data among medical staff	SA	69	26.6						
	A	79	30.4						
	UD	36	13.9	3.47	4.00	4.00	37.5	-0.407	Satisfactory
	D	54	20.8						
	SD	21	8.1						
ICTS simplifies communication within and outside the health unit / hospital	SA	71	28.0						
	A	128	50.4						
	UD	24	9.4	3.93	4.00	4.00	24.5	-0.995	Satisfactory
	D	27	10.6						
	SD	4	1.6						
We find it cheaper to manage flow of information about malaria using ICTs than using paper or books	SA	69	27.2						
	A	91	35.8						
	UD	36	14.2	3.58	4.00	4.00	35.5	-0.660	Satisfactory
	D	35	13.8						
	SD	23	9.1						
We retrieve accurate data about malaria drugs when use ICTs like phones and computers	SA	64	24.9						
	A	116	45.1						
	UD	25	9.7	3.69	4.00	4.00	31.5	-0.823	Satisfactory
	D	37	14.4						
	SD	15	5.8						
Average				3.66			31.6		Satisfactory

Health workers satisfactorily subscribe to and support (mean = 3.76) the easy use of ICTs while keeping records about malaria drugs (strongly agree = 25.9%, agree = 47.1%) as one of the parameters that interest them to adopt the use of technology. Whereas many support the ease of use of ICTs, its skewness is creaked more on the side of the public health units than private ones suggesting that public infrastructure required qualified human resources who have gone through verification and competent training with the ability to provide good remuneration against the skills of personnel. Health workers believe they are effective (mean = 3.71) when the processing of data about malaria drugs (strongly agree = 25.8%, agree = 48.5%) due to the perceived ease of use of ICTs. Although ICTs were revealed effective in processing data concerning tracking malaria drugs in health units, it is revealed that the majority of the health workers having limited skills (mean = 2.68) to use ICT systems to track malaria drugs in health units (disagree = 42.8%, strongly disagree = 15.6%). Lack of skills to use ICTS in health units was discovered to skew positively (Skewness index = 0.439) towards public health units than their private counterparts. However, they ascend to the fact that ICTs are needed (mean = 4.03) to execute tasks

that are key in their daily operations (strongly agree = 31.3%, agree = 49.4%). This simply implies that although health workers have limited skills in the use of ICTs in the process of tracking malaria drugs in health units, they look at it as a very necessary tool in the routines and tasks because of the increased speed, reliability, accuracy (strongly agree = 39.1%, agree = 40.6% mean = 4.07, mode = 4.00) and data sharing among themselves, communication (mean = 3.93) within and outside health units, cheaper to manage information about malaria using ICTs than using paper or books. This implies that much can be achieved with more improvement in the engagement of such a technology. On average, therefore, intention to use and actual use of ICT in the tracking process for the administration of malaria drugs in health units is assumed as the solution in the work environment.
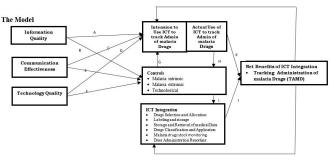

Figure1: The Conceptual Framework for ICT Integration and Tracking Administration of Malaria Drugs [Ssegawa *et.al* TAMD, 2019)]. [Extended from Success Model DeLone & Mclean, 2002 & 2003).

To establish the magnitude of such relationship among the variables / constructs, Pearson's cross product bivariate deviation and covariance's option was used and the representative results below in table.1 were generated showing how significant the correlation existed.

Key:

IUAU: Intension to Use and Actual Use

IQ: Information Quality

CE: Communication Effectiveness

QT: Quality of Technology

TAMD: Tracking Administration of Malaria Drugs

The results in the table above revealed that there is a strong and significant linear positive correlation between IQ, QT, and CE as their correlation indices rated between 0.1 and 0.58 represented well above 10% and 50% at the level of p= 0.01. Therefore the implication of the positive influence of the independent variables on the dependent variable is that any change evoked onto the independent variable causes a direct change in the dependent variable in the designated direction.

The letters below represent the meaning of the hypothetical relationships between constructs of the conceptual framework above in fig. 1

A: Increase in Information Quality cause a significant (0.145*) positive increase in the intention to and actual use of ICT in tracking and administering malaria drugs.

C: Increase in Communication effectiveness cause a significant (0.258**) positive increase in intention to and actual use of ICT in tracking and administering malaria drugs.

D: Increase in Technology quality cause a significant (0.174*) positive increase in intention to and actual use of ICT in tracking and administering malaria drugs.

K: Increase in intention to use and actual use of ICT cause an appreciably higher positive increase in the net benefits described as TAMD (0.750**, P = 0.00) in tracking administration of malaria drugs.

4. REGRESSION ANALYSIS OF INFORMATION QUALITY, COMMUNICATION EFFECTIVENESS, TECHNOLOGY QUALITY IN INFLUENCING INTENSION AND ACTUAL USE OF ICT

Standard multiple regression amongst other forms of multiple regression (hierarchical and stepwise) was used because it facilitates analysis of all the predictor variables (Independent variables) at once and is evaluated simultaneously depending on each variable's predictive power over and above that offered by all the others. Regression as a quantitative technique evaluates the im-

Table 1: **Shows Pearson's Cross-product deviation and covariance matrix of Variables**

Variables		IUAU	IQ	CE	QT
IUAU	Intension to Use and Actual Use	1.000			
IQ	Information Quality	0.145*	1.000		
CE	Communication Effectiveness	0.258**	0.491**	1.000	
QT	Quality of Technology	0.174*	0.336**	0.582**	1.000

*. Correlation is significant at the 0.05 level. **. Correlation is significant at the 0.01 level.

Table 2: Shows correlation between Intention and Actual Use of ICTs and Tracking administration of malaria drugs (TAMD)

Variables	Intension and Actual Use of ICT (IUAU)	TAMD
Intension and Actual Use of ICT	1.000	
TAMD	0.750**	1.000

**. Correlation is significant at the 0.01 level

pact of numerous simultaneous influences on a single dependent variable in terms of the degree of relationship, form, and direction of correlation [4]. The outcome of the multi-regression analysis was used to test the significance of the constructs.

In the interest of the intention and actual use of ICTs in tracking the administration of malaria drugs, it is discovered that CE had a positive significant correlation with the Intension and Actual use of ICTs in tracking the administration of malaria drugs. (B = 0.351). IQ is revealed not significantly (P-value = 0.612) correlated to Intention and Actual use (B = 0.029). This means that although it is clear that it influences positively the Intension to Use ICTs (Beta β = 0.042) the impact is very low, so it is not an important factor to influence the Intention and Actual use of ICTs in the tracking of administration of malaria drugs in health units in Uganda. Technology Quality (TQ) was revealed to have a negative linear correlation with Intension and Actual Use of ICTs (B = - 0.087) and further has a negative influence on the same (Beta (β) = - 0.050). Nevertheless, the variation between these variables is also low (adjusted R2 = 0.034) hence suggestive of the worthiness by 3.4%

Intension and Actual Use = 24.304 - 0.087 (TQ) + 0.029 (IQ) + 0.351 (CE) (R2 = 0.034= 3.4%)................ 1.1

Above explains the relationships (A, C, and D) for IQ, CE, TQ, and Intension and Actual Use of ICTs, while K for IUAU with TAMD which were measured quantitatively as represented by the values of B. The summary of the relationships of the variables explains the overall structural equation (1.1) they represent in tracking the administration of malaria drugs in the health units in Uganda, thus intention and Actual use of ICTs influence tracking administration of malaria drugs by approximately 72%.

5. CONCLUSIONS

— There is a strong and significant linear positive correlation between IQ, CE, QT, CE, and TAMD as their correlation indices represented well above between 10% and 30% at the level of p = 0.01.

— Communication Effectiveness (CE) has a positive significant correlation with the Intension and Actual use of ICTs in tracking the administration of malaria drugs (B = 0.351). Information

Table 3: Shows multiple regression of the Intension andActual Use of ICT in tracking administration of malaria drugs

Model	Unstandardized		Standardized coefficient	t	Pvalue / Sig	Decision on Hypothetical relationship	Direction
Constructs	B	SE	Beta (β)				
Constants	24.304	3.221		7.544	0.000	Significant	Positive
Technology Quality (TQ)	- 0.087	0.148	- 0.050	-0.585	0.559	Not Significant	Negative
Information Quality (IQ)	0.029	0.057	0.042	0.507	0.612	Not Significant	Positive
Communication Effectiveness (CE)	0.351	0.146	0.223	2.400	0.017	Significant	Positive

Dependent Variable: Intension and Actual Use of ICT

R	0.222^{a}
R Square	0.049
Adjusted R^2	0.034
F	3.282
Sig	0.022

Table 4: Shows summary of coefficients of the relationships of the TAMD model Fig 1

Relationships	Variables		B	SE	Beta (β)	Adjusted R ^{2}
A	IQ	Intension	0.029	0.057	0.042	
C	CE	and Actual	0.351	0.146	0.223	0.034
D	TQ	Use of ICTs	-0.087	0.148	-0.050	
K	Intension and Actual Use of ICTs	TAMD	0.705	0.047	0.715	0.709

Quality (IQ) is revealed not significantly (P-value = 0.612) correlated to Intention and Actual use (B = 0.029). This means that although it influences positively the Intension to Use ICTs (β = 0.042) the impact is very low, so it is not a very important factor to influence the Intention and Actual use of ICTs in the tracking of administration of malaria drugs in health units in Uganda. Technology Quality (TQ) was revealed to have a negative linear correlation with Intension and Actual Use of ICTs (B = - 0.087) and further has a negative influence on the same (Beta (β) = - 0.050).

6. RECOMMENDATION

Management of health units should always endeavor to organize internal seminars and training to empower health workers with soft skills in applying the available ICTs to improve their competencies to progressively manage malaria-related challenges pivoted by tracking drugs.

Health institutions should appreciate the value of investing in ICT infrastructure as a way of embracing basic technology as good practice in the management of information for good decision-making to improve the quality of service and lives of malaria patients in health units.

7. LIST OF ABREVIATIONS

IUAU   Intension to Use and Actual Use.

IQ   Information Quality.

IIQ   Information quality as Intrinsic Information Quality

CIQ   Contextual Information Quality

RIQ   Representative Information Quality

CE   Communication Effectiveness.

QT   Quality of Technology.

TAMD Tracking Administration of Malaria Drugs.

ICT Information and Communications Technology.

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Author biography

E. James Kiggundu Ssegawa is a Lecturer at the Faculty of Applied Sciences, Team University.

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