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Decision-making for ICT Integration in Schools: Through the Lens of the Technology Organisation Environment Theory

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Abstract **Original Research Article**

Both leadership and management of schools involve greater-depth decision-making. The decisions made must be deemed sensible and stand the justifications for why they are made. This study explored decision-making in ICT integration for school purposes in an international high school. Schools operate with technology in various aspects but contexts vary. This context also separates certain schools from those that acquire ICT for the sake of it. Thirteen participants represented by teachers, students, an ICT coordinator, departmental heads and principals took part in the study. By grounding this study on the technology, organisation environment theory, specific and context-based reasons for ICT integration enactment and the decisions made were clarified. Subsequently, the findings showed that ICT integration was enacted to cater for curriculum demands and its compounding impact on the efficiency and effectiveness of general school purposes. Decision-making addressed issues of policy, vision, resourcing, training and decentralisation of ICT decisions. A four-factor model was developed to emphasise that decision-making was based on the context of the school, informed by policy and occurred through centralising and decentralising decision-making. This study recommends further study into processes that are involved in decision-making.

Keywords: ICT, ICT integration, ICT integration decision-making, TOE.

INTRODUCTION

Information and Communications Technology (ICT) integration is a curriculum imperative in 21st-century schools considering the dynamism, diversification of educational systems and the outright benefits of technology. Consequently, changing technologies like mobile phones, computers, closed-circuit television (CCTV) cameras and the internet have over time permeated the education sector to create, store and communicate information (Antonio & Lorenzo, 2019). ICT integration is thus a focal point in educational research in determining how to introduce and use technology effectively (Abdullah, 2016; Adel & Dayan, 2021; Adesope & Rud, 2019). However, there must be a link between ICT integration in educational provision and the decision-making process of how and why ICT is integrated. This study was done in an international school. Such schools normally work in conditions of higher access to expensive and modern resources (Hughes, 2020) and international curricula (Lee *et al.*, 2012) like International General Certificate of Secondary Education (IGCSE) and International Baccalaureate (IB).

A decision is defined as a commitment to take action based on concrete thought and rationality (Langley *et al.,* 1995). Johnson and Kruse (2012) describe it as a careful choice made between two or several alternatives. This later definition suits well in the worldwide technology explosion. Key questions to be asked in decision-making are also who makes the decisions and how valid are they in educational provision. The onus of decision-making usually falls on the school leadership to understand, promote and implement ICT integration to focus on pedagogical change (Afshari *et al.,* 2008). The understanding of leadership in schools and the whole aspect of decision-making have many narratives and perspectives. However, leadership formats and terms like technology-oriented management (Melo *et al.,* 2021) and participative decision-making (PDM) (Torlak *et al.,* 2022) recognise the importance of collaboration in corporate decision-making.

LITERATURE REVIEW

ICT in education refers to any technology that is paramount to knowledge sharing or communication in curricular settings (Ismail *et al.,* 2020). A technologically progressive future requires human resources with skills (Mohebi, 2019). Educational systems are thus compelled to streamline their efforts to provide services in line with the 21st-century complex environment (Mohebi, 2019). In educational institutions, the adoption of ICT tools and placing them central to a critical, productive, and inclusive society, has been important for improving educational quality (Melo *et al.,* 2021). From this supposition, it is apparent, then that school management can no longer be conceivable without technological leadership. This leadership translates to making decisions that consider technology as an essential and contemporary element of school functioning. With this in mind, attention is directed towards developing tasks and processes that are optimally enhanced with technological resources (Jogezai *et al.,* 2018).

The decisions for ICT integration are rooted in numerous benefits brought to school operations and curriculum offering. Tan (2016) explains that ICT does not affect only teaching and learning processes but is instrumental in transforming management processes, and provides support for planning, management, and decision-making purposes. In most schools, ICT has become a commonplace way of operation. For instance, information keeping is done efficiently with ICT (Mwadulo & Odoyo, 2020) as vast amounts of student and staff information require well-established and managed computerised systems for record-keeping. Information is a fundamental resource to schools such that its organisation and management is one of the most strategic operational instruments for efficacy (Yusuf *et al.,* 2022). Centralised School Management Information Systems in this case, store, process and retrieve data more efficiently (Grepon *et al.,* 2021). Technology has revolutionised communication in school settings too, through fast and short digital information exchanges (email, social media, school websites) that have replaced traditional communication methods (Heath *et al.,* 2015). In teaching and learning, ICT tools are deemed invaluable in solving problems (like understanding concepts and research) and providing learning experiences that cater for exploration, discussion and experimentation (Gawande, 2020; Pham *et al.,* 2019). In essence, ICT integration aims to help the transition from a 'teacher-centred' to a 'learning-centred' approach (Mohebi, 2019).

ICT integration in education is no easy feat, though. It is a complex undertaking because of the dynamic nature of technology and other seen and unseen barriers (Ghavifekr *et al.,* 2014). Thus, issues related to managing, efficiency, organizing, scheduling, and time demands are some of the critical areas that need careful decision-making. Planning for ICT integration in education is consequently considered a key element for improvement and development. It is no surprise, therefore, that decision-making in ICT integration in schools zero on strategic planning, vision and policy making (Ghavifekr & Rosdy, 2015).

There is immense literature on decision-making and how it is usually a school leadership role (Afshari *et al.,* 2008; Brown & Jacobsen, 2016; El Takach *et al.,* 2018; Esplin *et al.,* 2018). Other scholars recognise school principals' limitations and incorporate forms of shared technology leadership (Alam, 2017; Banoğlu, 2011; Okeke, 2019). There is a dearth of literature nonetheless on how ICT integration is enacted and why decisions are made. However it is done, the decision-making process should begin with knowledge of the prevailing conditions (Yorulmaz & Can, 2016). The same authors add that this should then be followed by working towards the creation of opinions and attitudes that favour the innovation, and why it is favourable or unfavourable.

Statement of the Problem

People generally struggle with decision-making. Besides ultimately coming up with decision it is important to deduce if the decision made is the right one. It is critical to weigh the decisions made against set expectations. For instance, ICT integration is not just about access to ICT tools but a question of how the technology is acquired and used. It must be used develop 21st century skills in learners and improving school efficiency and effectiveness. Hatlevik and Arnseth (2012), and Rampersad (2011) posit that with ICT integration in the classroom, students will be able to engage in interactive tasks with a wider range of information and knowledge during their learning. At the same time, the teachers' beliefs and attitudes will influence them to integrate ICT in their teaching practice. In that regard, it remains imperative to know reasons ICT-related decisions are made and the capability of the decision-maker in terms of knowledge, interest and understanding of impact of ICT integration on school development.

Research Objective

This study sought to explore the decisions that motivated ICT integration in an international high school in Eswatini.

Theoretical Framework

The technology organisation environment (TOE) theory serves as a fitting theoretical framework in this study because it offers a holistic approach on how technology is adopted, and covers aspects of instrumentation and decision-making. Developed by Tornatzky *et al.,* (1990), this three-part theory is specific to ICT integration and puts decision-making central, but as a consequence of considering all three components. Figure 1 is an adapted version of the TOE framework.

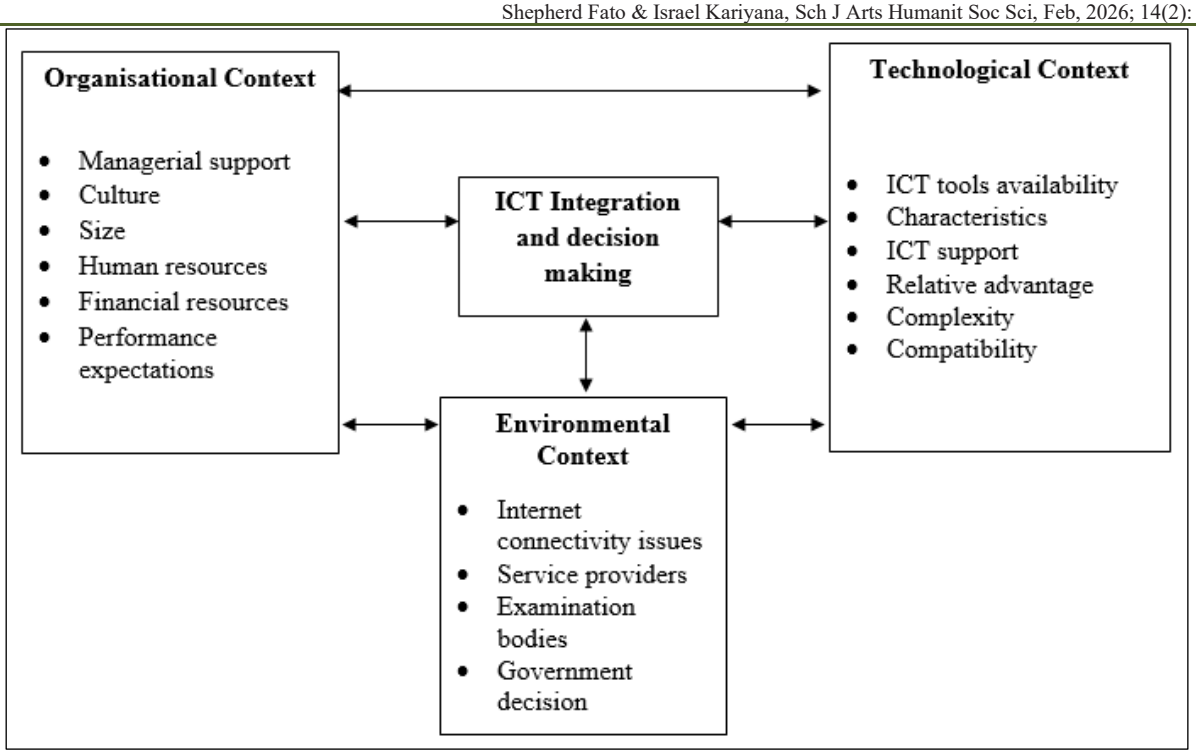

Figure 1: The Technology Organisation Environment Theory (Adapted from Tornatzky *et al.,* 1990; (Luhamya *et al.,* 2017; Mousa *et al.,* 2020; Tornatzky *et al.,* 1990).

The technological context addresses the availability of ICT tools which negatively or positively impacts ICT integration and decision-making in a school (Namisiko *et al.,* 2014). The type of ICT, familiarity, and other factors such as cost, compatibility, reliability and relative advantage are considered (Luhamya *et al.,* 2017; Namisiko *et al.,* 2014). The organisational context is characterised by aspects related to managerial support, the culture and human and financial resources (Tornatzky *et al.,* 1990). Policies in ICT use, intended goals, priority setting, technical challenges, pedagogical methods and adapting swiftly to changes in ICT are all considerations in this component (Cha *et al.,* 2020; Nwali & Ugah, 2019). The environmental context usually incorporates external conditions like markets, ICT supply and government and external authority regulation (Tornatzky *et al.,* 1990). For instance, internet connectivity comes from business service providers who might have little control over bandwidth and internet speed in the country.

Figure 1 shows that the three components of the TOE theory are connected with double arrows to show their interlinkage to each other as well as to the decision-making process. The school's ICT tool acquisition depends on who needs it and the intended purpose. In the same vein, the purpose is derived from organisational orientation, vision, policy, people needs and mission statements. Environmental factors like market availability and examination body stipulations have to be considered. Performance expectations with ICT are directly tied to the technological provision under consideration that the standards are based on what ICT tools are available.

RESEARCH METHODOLOGY

Research Approach

This study adopted a qualitative approach. Qualitative data was preferred so that meaning relevant to the research questions could be obtained through specific responses and inferred outcomes (Cohen et al., 2018; Miles et al., 2020).

Research Design

A qualitative single case study was used in this study to gather information data that was socially constructed from the experiences of participants (Creswell & Creswell, 2018; Mertens, 2019) in an international high school. Qualitative data was more useful in collecting information about the decisions that motivated ICT integration in an international high school's operations. A case study allowed a critical analysis of the context of what was done and why.

Permission to conduct the study

Permission to carry out research was sought from the school authorities and the Eswatini Ministry of Education and Training.

Research Participants

Thirteen participants made up the sample and these were: the principal, deputy principal, teachers, an ICT coordinator, two departmental heads, and two students. Purposive sampling was enacted because the school offered international curricular that put emphasis

on ICT integration and thus data was more likely to be obtainable. It was also applied to designated authorities of leadership (like principals and departmental heads) were school-based decisions are normally made. Subject teachers and students were purposively sampled for their known ICT integration in teaching and learning. Convenient sampling was used in relation to participant availability. Some participants offered to be interviewed after the intended participants could no longer participate for various mentioned reasons. From this assortment of participants, multiple realities were guaranteed to fully grasp the context and adequately answer the research questions (Creswell & Creswell, 2018).

Research Instruments

An interview guide was developed for semi-structured interviews which were used to enable flexibility in asking questions and probing (Adams, 2010; Cohen *et al.,* 2018). The interview guide was drafted to ask biographical questions, and then both ICT integration and decision-making questions. The TOE theory was used to guide the formulation of the ICT integration and decision-making questions. The same questions were asked to get multiple realities on and facilitate data triangulation (Cohen *et al.,* 2018; Creswell & Creswell, 2018; Mertens, 2019). The interviews were done through face-to-face initially and over Zoom Cloud Meetings (during the 1st COVID-19 lockdown). Documents were requested and participants (who could) submitted schemes of work, images, ICT policy, and syllabi for consideration. Data collection started in the week the country entered the first COVID-19 pandemic lockdown.

Data Trustworthiness

The trustworthiness of the research was mostly determined by participant member-checking, especially the evaluation of findings to see how they reflected their individual or collective actions as a sample (Korstjens & Moser, 2018; Lincoln & Guba, 2013).

Data Analysis

Initially, interview data was transcribed and was then organised into Word files and folders (Cohen *et al.,* 2018; Miles *et al.,* 2020). A critical reader verified the veracity of the transcription. It was important to search for insights to define the priorities for data analysis (Yin, 2018). Hence, reading and re-reading the data and analysing the research objectives led to data reduction through open and axial coding (Cohen *et al.,* 2018). Themes were thus generated that helped in presenting the data and findings to answer the research questions. The interpretation of the findings and generation of meanings were based on the researcher's viewpoint as well as explaining them relative to literature and the theoretical framework (Mertens, 2019).

Research Findings

This section comprises findings related to the research questions. They are presented first with the context-based reasons why ICT integration was enacted in the way it was and then followed by the decisions made in the ICT integration process. In this article, the participants are referred to by their descriptions except the Business Studies teachers 1 and 2 as well as Student 1 and Student 2 because they were two for each description. The international school under study is based in Eswatini and it was given the pseudonym 'Shirichena' for its anonymity.

The Drivers of ICT Integration at the International High School

The drivers of ICT integration were context-based. Participant responses are discussed in the derived themes on how the school met both curriculum demands and stakeholder expectations; and achieved efficiency and effectiveness with ICT integration.

Responding to Curriculum Demands

International curricula like IGCSE and IB are designed for comprehensive and wholesome learning experiences that have over considerable time embraced ICT. Findings from the participants, the school website and some documents (like schemes and syllabi) reviewed showed that ICT was greatly used to set and achieve curricular demands. ICT integration was meant to lead to improved students' educational attainment with technology. Accordingly, many participant actions tallied with dependence on ICT to cover curricular objectives. For instance, the Geography teacher revealed how teachers met curriculum demands with ICT.

> *Yes, technology is important but different teachers have different approaches as long as they cover the syllabus. When I am doing geography coursework with IB students, I ask them to bring their laptop computers. From time to time I ask them to do presentations using PowerPoint. I also want my students to be confident with technology so I ask them to research from different websites.*

The Music HOD stated that:

> *Music is a taught subject in the timetable but can also be regarded as an extra-curricular activity. In the taught curriculum, students come to some point to experience learning music through technology. IB and IGCSE students must compose and produce a musical piece. All of the music is created using technology and then sent away as the technological package for assessment.*

Similarly, the Creativity Activity Service (CAS) HOD echoed that:

> *This CAS programme is a passing requirement for the IB. If they fail CAS they fail the whole*

diploma. Community service varies from visits to social centres and schools to teaching certain skills, like swimming, and first aid in primary schools around Eswatini. For most projects they do, they have to do some research on the internet. They may be working on a literacy programme for example. In the field, technology is used for taking pictures and recording audio and videos of events.

Although teachers had different experiences with ICT use, the general conclusion was that ICT enhanced the process. This was gathered from the mentioned reliance and value of tools like interactive online games and software; YouTube videos; and PowerPoint presentations to list a few. ICT did not only diversify teaching methods but helped create stimulating environments and unique subjects like CAS.

Effectiveness in Performing School Operations

ICT integration epitomised effectiveness in performing school operations at Shirichena. Effectiveness was again generally a participant-specific measure to see whether using ICT led to achieving the intended results. In most cases, ICT helped participants to work better to accomplish tasks and be productive in their functions. Student 2 gave a more suitable expression on how ICT helped in effective learning: *"We are always online. We use laptops and the internet to do our assignments. In research, we share useful websites, links and other information from the internet. We depend on technology to be effective in our learning.*"

The incorporation of ADAM (information management system) into school communication and information management created the greatest advantage for the school. With it, stakeholders made school reports, retrieved information with relative ease, faster and kept it longer in less bulky ways. The French teacher remarked about this:

All our information is on ADAM - all students, your classes, your students, yourself, and any type of information. Like at the beginning of the year for example, I do not know all my students, I can just open ADAM and then go to my class and open people and then see all their pictures and relevant information about them.

Teachers did daily student registration to check student attendance and report on ADAM. This was important as expanded by the CAS HOD and Student 1: *"Class teachers check for absentees every morning and post it on ADAM together with reasons why a particular student is not in school."* Student 1 confirmed this and said: *"We also use ADAM. I can directly report to my class teacher if I am not feeling well and cannot make it to school or if I am going to be late because of a doctor's appointment."*

Efficiency for School Operations

The school operated from an efficient point of view by using ICT in teaching and learning, communication and information processing. In this regard, ICT enabled faster ways of undertaking school operations. As mentioned earlier, there was a culture of constant e-mailing and information sharing which were necessitated by investing in the internet, ADAM and the school website. In teaching and learning, efficiency was reported in many ways including sharing information. One succinct mention of this was obtained from Business Studies teacher 2 who recounted that:

IB has many sites. Like IB thinking and IB home, where you find all relevant information. On those websites, you find everything like lesson plans, how to plan them, resources and so on. You find everything there. The school pays these subscriptions because they are trustworthy, verified and for the efficiency, we need in teaching.

Efficiency was seen in other ways through which information was stored and retrieved. For instance, the Business Studies teacher 1 cited that:

The school has an efficient way of storing, retrieving and sharing information. You see, if I am a new teacher, they don't want me to start afresh. Like writing down how to plan a lesson. All the staff is there in shared drives and easily accessed. Everything you do, you put there. So, I am teaching a topic, I put my notes there. I am doing a lesson plan; I share it with all the teachers in the department teaching the subject.

Stakeholder Expectations on ICT Integration

Stakeholders like parents, donors, school alumni, school groupings and the examination bodies all had either a direct or an indirect impact on ICT integration in the school. The examination bodies are included in the list because International Baccalaureate Organisation (IBO), for example, was a school partner whose influence guided the curriculum. Shirichena was affiliated with DEF, which was an organisation for international schools with certain standards. Like the IBO, the DEF had high standards for quality and modernised education. High stakes in ICT inclusion in the curriculum were thus expected. The indirect influence on ICT integration was associated with ICT resourcing and facility development, where parents, donors, alumni and other well-wishers played a significant role. Most participants appreciated the efforts that stakeholders played in ICT integration. The Business Studies teacher 2 had this to say:

We are referred to as DEF school more than an international school and this association influences the way everything is done. DEF schools are known for having students from different backgrounds, economic and social status. As a school, we must have conditions

that favour students from rich backgrounds as well as poor families. I don't think schools of such nature can be big without having technology for their teachers and students.

Parents and other well-wishers contributed to hardware and software acquisition and ICT projects. The Geography teacher revealed more:

Parents have a huge influence on this school. The IT centre used to be one big space and now it is divided into two. There was a donation that was put in to help us partition it. A couple of years ago one member of the school board used to pay for our internet.

School Management-Focused Decisions which Motivated ICT Integration

This section presents findings on what school management decisions were at play concerning ICT integration for school purposes. The themes presented are that decisions were made for the creation of an ICT vision and policy, ICT resourcing, professional development and decentralisation of ICT decisions.

Creation of an ICT School Vision

ICT vision was created to bring into perspective reasons ICT integration was important for school operations, and overall depiction of purpose. The ICT vision was linked to how all stakeholders valued technology and planned their work in line with school expectations. The overarching understanding for all participants was of technology being linked to modernisation and how the school presented itself in the light of teaching millennials from all over the world. The deputy principal mentioned the school's standpoint:

The modern world has technology and the moment students come into the school, they must operate with technology. Our students must become confident users of ICT. The mission and vision are based on the responsibility and obligation the school has in educating children from different nations and backgrounds and using modern methods.

The principal, his deputy and two teachers mentioned that the school graduate complement attended international universities and hence needed a solid foundation with diverse ICT tools. From this standpoint, the vision was meant for relevance and appeal most importantly to students and their parents. The participants were exposed to ICT tools and needed to make positive and informed decisions to integrate ICT.

Creation of an ICT Policy

An analysis of the ICT policy at Shirichena showed that it was designed to guide and regulate ICT usage in the school. It directed how computing facilities were to be used, their management, technical support and other issues of legislation and disciplinary procedures to follow. Thus, all ICT users at the school were supposed to be aware of the policy before using the tools so that no one was left misinformed about expectations. All participants acknowledged the presence of the policy and the Mathematics teacher recounted that: *"There is an ICT policy and it's on the website. It's all-inclusive. Meaning we were all consulted when coming up with the policy. "*

Besides awareness of the policy, the finding was that the policy was critical in the school operation as highlighted by the principal:

Policy governs this school in everything we do. Policies control and regulate how things are done. We have got a policy on ICT use that is acceptable. It's just the everyday ICT use in education. It is about information that everyone needs. We create awareness about the goodness of ICT but also need to inform them of possible dangers and misconducts that arise from ICT use.

Strategic ICT Resourcing

The school leadership strategically planned for ICT integration and ICT tools were provided to be essential tools needed for daily functioning in various school operations. All participants acknowledged the investment in ICT in the school. Typically, an IT centre housed most of the ICT tools like desktop and laptop computers; interactive whiteboards; and projectors. Strategic ICT resourcing and planning were seen in providing full ICT access to students and teachers in the IT centre. Coupled with that, the centre was managed by ready-on call and hands-on IT technicians. All classrooms were fitted with data projectors to facilitate involvement in teaching and learning. Students were free to bring their own devices and get internet/Wi-Fi connections. The principal cited ICT resources in this response:

We have an IT centre that has computers for all students to use for learning and research. The computers have an internet connection. Every classroom has got a projector and a sound system and internet connections too so that they can use videos, PowerPoint, and all sorts of mechanisms. And the idea behind this is that if a teacher is using a technology and if a teacher wants to use a technology we are very well willing to invest in it.

Nonetheless, the school did not provide all ICT tools (because of financial limitations) as cited by the principal and two teachers. The Music HOD was not pleased with the ICT provision at the school and recounted:

There are six computers and we could do with twenty-five, you know. It is always difficult also because the machines are too old to compete and they're not fast enough. They haven't got enough processing power. So we have a limited

range of actual instrumental sounds that we can use.

Infusing Professional Development Programmes

The school leadership facilitated ICT skill development mostly through creating permitting conditions like access to the web and through training programs created by the IT department. This included different levels of offering computer literacy training. Students and teachers that joined Shirichena were inducted into how the school system functioned including the use of ADAM and emailing. Teachers and students also approached the IT department for certain software or applications. Due to the pivotal role played by the IT department, all participants recognised their relevance to the IT department in ICT integration and in professional development. The principal's response was more informative:

> *If there is a teacher who says they want to go do a course or training for something we support that. If there's general training for everyone, there must be interest from the staff. At times we want them to learn certain software for use in the school and we organise that. However, in terms of teacher training - well times have changed. Teachers cannot always wait for the IT director or the school to train them. There is the web. With other things, they must learn on their own. I was never trained in computer literacy. We have got a few efficiency issues on ADAM but I was never trained on it. You learn with the device.*

ICT professional development programs at Shirichena offered elementary ICT knowledge. The ICT coordinator highlighted that some of the difficulties involved planning to offer training to teachers who had different ICT needs and preconceived ideas about ICT in their teaching. She narrated that:

> *When I organise teachers' classes, they are not usually received well. The timing is tricky because they have many roles, and getting them into a class is difficult. But they do come individually or in groups. Sometimes they get confident with me, and I say, sit over there. I will work here, and you will work on your device. If there is an error like this, you fix it like this.*

However, the most important form of training was mentioned by five teachers who were interviewed during the pandemic. This was in preparation for remote teaching and learning. The History teacher revealed this:

> *I can say that it was done for four days (before we started online teaching). The way this training was done was that she uploaded documents and videos that introduced us to how to use Google Classroom and Zoom through ADAM and the school website. Once teachers got an idea of how to use Zoom, we were invited to meetings to familiarise ourselves with how it worked and get hints on Google Classroom too.*

Decentralisation of ICT Decision-Making

ICT responsibilities and decision-making were decentralised so that the right people could make context-based and informed decisions. All participants were quick to mention that ICT-related decisions were made by the IT department. A response from the principal characterised the perception of decentralisation:

> *The people there (in the IT department) see to it that computers and other gadgets are working properly. Their feedback also helps us plan and budget as well. I don't have much to do with day-to-day technology needs in the school. The IT director and her department are the best people to address all IT-related responsibilities. Teachers and HODs also make ICT decisions.*

The ICT coordinator expanded the concept:

> *The school management entrusts us with the operation of technology in the school. As the leader of this department, I allocate duties according to our numbers and capabilities. The school management trusts our judgement. Just recently we found a way of making Wi-Fi faster for teachers using existing infrastructure. We have problems with thunderstorms though. But what we do is make sure that we are insured. Secondly, we have decided to buy the CISCO devices which are one of the best devices. It's our job to get the teachers functioning.*

Different participants also acknowledged their roles in deciding what ICT tools they needed for impactful and diversified teaching. Teachers were trusted by the school leadership that they could make the right decisions concerning how they utilised ICT in teaching and learning. The Business Studies teacher 2 provided this information: "The head of the department gives us the latitude to use ICT as we see fit. The whole administration is very supportive." The History teacher added more detail:

> *The school allows autonomy to individuals, teams or departments to look at what sort of issues they want to address with technology. It is the department that must agree on what they need and then the HOD takes it up with the management. You see that our needs in History are different from the needs of Accounts or Science.*

DISCUSSION

The results presented above show a pertinent dependence on ICT for functionality and that intricately justified the actions taken. The curricular connotations contributed immensely to ICT integration. IB and IGCSE

curricula are described as challenging, adaptive, flexible, and global-oriented with a particular approach to fostering vital skills for university and future careers (Cambridge Assessment International Education, 2020a; International Baccalaureate Organisation, 2017). Thus teachers adjusted to teaching students who are digital natives and exploit the benefits technology can bring (Abraham *et al.,* 2019). Computers and the internet improve teaching and learning and increase the chances of adaptation to changing educational interfaces (Gawande, 2020; Sharma, 2020). The school thus made decisions to use ICT to deliver, support, and transform the curriculum.

Different stakeholders connected to the school created an expectation with ICT. This agrees with the TOE theory in that the school's environment impacts ICT integration. In this context, stakeholders promoted ICT integration through ICT resource provision, school fees, donating funds and ICT-related resources and policing. Schools become effective, if they build positive relationships with surrounding communities (Mulford, 2003) and the idea of looking for funding helps schools develop where they are financially limited (Museng'ya, 2018; Ritzhaupt *et al.,* 2008). The donor effect at Shirichena collaborated with Kington *et al.,* (2002) who discovered high morale in schools where teachers, students, and parents had ICT integration levels elevated by community support.

Efficiency and effectiveness are both critical organisational aspects that decisions at Shirichena were made to improve through utilising technology. Effectiveness was participant-specific, and it was an assessment of how ICT helped participants work better, be productive and accomplish tasks in their functions with software and hardware. Like this study, studies by Semerci and Aydin (2018) and Comi *et al.,* (2017) attested that effectiveness with ICT integration was brought about by diverse teaching and learning opportunities, easy lesson planning and simplified lesson delivery and general achievement of educational targets. The Mathematics teacher for example exposed that a software, *MyiMaths* facilitated concept development through students getting extra practice, doing homework and self-testing in exciting ways. Similarly, Gil-Flores *et al.,* (2017) discovered that the availability and use of appropriate educational software created 'true' classroom ICT integration.

Efficiency was ascertained by saving time and using fewer resources where applicable. Specifically, a culture of emailing in communication and the use of ADAM in information management improved efficiency. In the teaching and learning practice, efficient ways of sharing information were commonly cited. For instance, the IT department subscribed and promoted the use of known websites. Shared Google drives were created to store different kinds of information like examination material and teaching material which could easily be accessed. In semblance to this finding, Amie-Ogan and Tagbo (2021) found out that computer and cloud storage systems enhanced administrative and work efficiency.

A vision is regarded as a foundation for ICT integration decision-making because it provides guidance and direction in ICT matters (Okeke & Dike, 2019). The ICT vision at Shirichena was connected to ICT meeting international school prominence and meeting school needs in daily and long-term functions. This vision provided a map for ICT integration in all school operations, organisation, and the school culture. Habiballah *et al.,* (2021) discovered that developing a clear vision enhanced ICT integration although their study, designated a principal to be an all-round ICT leader. The organisational context of the TOE theory analyses how human and financial resources were acquired for ICT organisation, the culture of the school, organisational expectations, teaching support and general management of ICT. As mentioned in the findings, the IT department had specialist expectations in the school and most technological functionality was centred around their actions. Connected to the vision is the idea of a school policy which was drafted to guide ICT usage in the school and consideration to the school's uniqueness and needs. The policy instructed all ICT users to be policy-aware. Studies by Rahim *et al.,* (2016) and Habiballah *et al.,* (2021) validated that policing develops plans that help set clear goals and the means of attaining them.

Enactment of ICT integration was made possible through the provision of appropriate ICT tools generally and specifically on request. The ICT provision was well-thought-out resourcing. For example, whilst it was not possible to have computers in all classrooms, the IT centre met students' needs in internet and Wi-Fi needs, in doing homework, learning, information finding and getting assistance from IT technicians. Teachers were provided with personal computers and other technology incentives. The main determinant of ICT integration is technology provision as stipulated in the TOE theory. Likewise, Gacicio *et al.,* (2021) based their findings on the TOE theory and proved that ICT integration is enabled by providing ICT infrastructure and a conducive organisation of the learning process and other functions.

The presence of ICT and technological organisation requires training programs that resources are used to their optimum. Some participants registered the training was insufficient (twice a term and when a critical need arose) and inadequate (due to skill sets that certain individuals required). However, it was regarded as an important ICT-related decision. The findings are in line with Albalawi (2021) whose results divulged a need for training and making it an ongoing process compelled by technological advances. Ghavifekr *et al.,* (2016) also

discovered that teachers who failed to develop enough ICT confidence (due to insufficient training) avoided using it to the detriment of the learning experience.

ICT responsibilities and decisions were best made by people with a need and expertise. This idea was developed from the understanding that decisions about ICT resource acquisition, training and issues of integration for school purposes were best decentralised for better ICT integration leadership. School leadership can have inadequacies in ICT matters and ICT teachers and ICT technicians can cover this gap. Teachers with expertise also contributed to the school's vision with ICT integration. Related to the autonomy teachers enjoyed, Pettersson (2018) discovered that teachers worked better in an environment that was accommodative to change and embraced technological change.

This discussion can be summarised by showing that decision-making related to ICT integration for school operations is mainly due to factoring four components as shown in Figure 2. The arrows depict an actionable description of each component in the box.

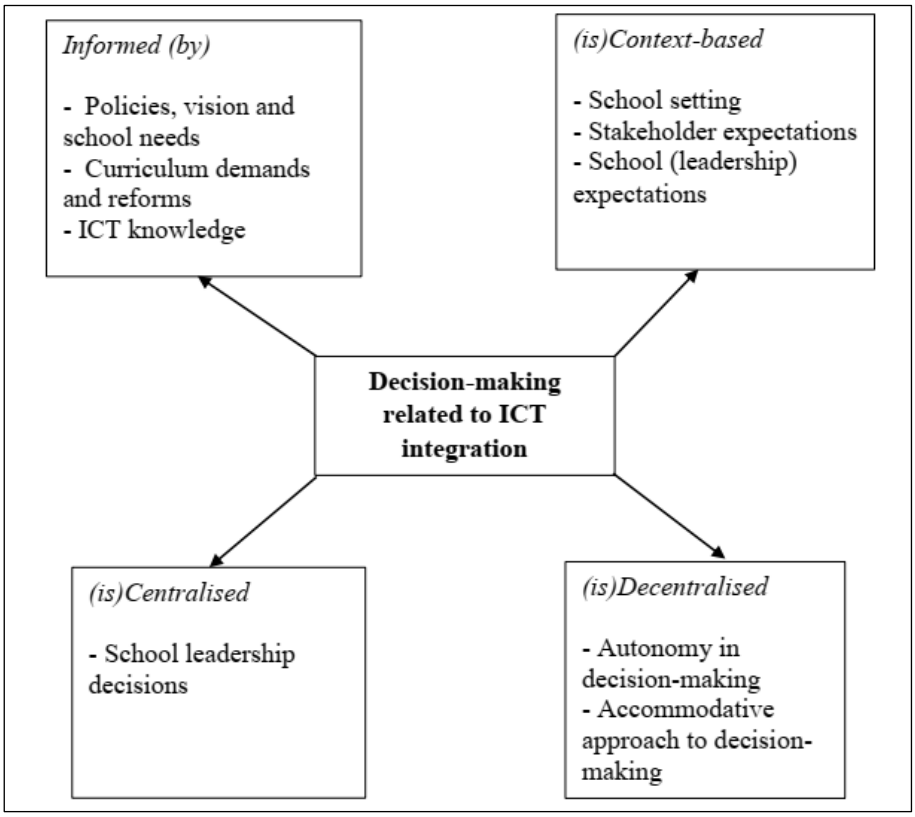

Figure 2: Four-factor considerations to ICT integration decision-making

CONCLUSION

This study was an exploration of decision-making concerning ICT integration in an international high school. The findings showed that the school under investigation had context-based reasons why they enacted ICT integration. Connected to these reasons were the decisions made to meet the end. Curriculum demands were central in the ICT integration enactment. Reasons like stakeholder expectations and the need for efficient and effective running of the school processes were all hinged upon the fact that modern curricular provisions emphasize technological adoption. The decisions concerning ICT integration were collectively made to harmoniously make ICT integration an attainable undertaking. The school leadership made decisions related to resource provision, policing and professional development. However, decisions connected to how teachers used ICT were delegated to teachers themselves and the guidance of the school's IT department. In summary, a four-factor model was developed to extend to the TOE and bring forth an understanding that decision-making was context-based and the decision-makers made informed decisions guided by school policy, vision, needs and knowledge of ICT. Thus, limitations in ICT knowledge and systems created room for decentralisation of crucial decisions.

RECOMMENDATIONS

This study recommends that:

- School ICT policies must be developed and enacted to enable access to ICT in recognition of the demands of the information age.
- ICT polices must be developed to cover all aspects connected with ICT to include; guidelines on procurement, care of, use and any restrictions imposed.

- ICT policy making must be connected to decision-making that is informed by ICT knowledge, trends in education, school's ICT needs and resource provision.
- Evaluation systems must be devised to determine how ICT integration in the schools meets the demands of using ICT in effectual teaching and learning.

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