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Perception-Based Model On TEL Integration In Teaching History & Government In National Schools In Western Region Kenya.

Fredrick Omondi Ouma, Opata V. Kafwa & Alice Yungungu
School Of Education, Moi University, Kenya
Moi University, School Of Education, Department Of Curriculum, Instruction And Educational Media, P.O. Box 3900-30100, Eldoret, Kenya

Abstract
The utilization of technology-enhanced learning (TEL) has proven to enhance the learning experience for learners by increasing learner engagement and learning outcomes in many countries including Kenya. Despite the benefits of TEL resources in teaching and the government's effort to avail the necessary TEL resources, there is still low uptake of TEL by history and government teachers. The purpose of this study therefore was to investigate teachers' perception on the integration of technology-enhanced learning in teaching history and government in national schools in Kenya. Then use the study findings to design a model on TEL Integration in teaching History & Government in national schools in Western region Kenya. In order to improve the performance of the subject.

Keywords: *Perception-based model, technology integration, technology-enhanced learning*

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I. Introduction

To prepare students for the technological society of the future, teachers need to foster a learning environment where students have technology experiences that enhance and transform their learning. Technology Enhanced Learning (TEL) has become more prevalent in education as it has evolved to enhance the traditional learning environment of face-to-face teaching Fugere (2020). The utilization of TEL in instruction has been proven to enhance the learning experience for learners by increasing learner engagement. Despite the benefits of TEL resources in teaching and the government's effort to avail the necessary TEL resources, there is still low uptake of TEL by history and government teachers Band (2020).

History and government as a subject is treated as quite abstract in terms of content, therefore teachers of history and government have continued to use traditional methods such as lectures, group discussion, and question and answer methods to teach the subject with little or no use of technology Wanami (2015). The low uptake of TEL in the teaching of history and government in secondary could be as a result of the perception of history and government towards the use of TEL tools. Ayere (2018), opine that, the tendency to use TEL in teaching strongly depends on the perception of the teachers towards the use of technology.

II. Literature Review

Models on the use of Technology in teaching

The term model is used to mean a teaching episode done by an experienced teacher in which a highly focused teaching behavior is demonstrated, in it an individual demonstrating particular patterns which the trainee learns through imitation. It is a way to talk and think about instruction in which certain facts may be organized, classified, and interpreted.

Bruce Joyce and Marsha Weil (2014), describe a Model of Teaching as a plan or pattern that can be used to shape curricula, to design instructional materials, and to guide instruction in the classroom and other settings. Thus, teaching models are just instructional designs. They describe the process and produce particular environmental situations that cause the student to interact in such a way that a specific change occurs in his behavior.

According to N.K.Jangira and Azit Singh (1983): "A model of teaching is a set of interrelated components arranged in a sequence which provides guidelines to realize a specific goal. It helps in designing instructional activities and environmental facilities, carrying out of these activities, and realization of the stipulated objectives." Models of Teaching are designed for specific purposes-the teaching of information concepts, ways of thinking, the study of social values and so on-by asking students to engage in particular

cognitive and social tasks. Some models center on delivery by the instructor while others develop as the learners respond to tasks and the student is regarded as a partner in the educational enterprise.

Technology integration models are theoretical constructs that guide researchers, educators, and other stakeholders in conceptualizing the messy, complex, and unstructured phenomenon of technology integration. Building on critiques and theoretical work in this area, the authors report on their analysis of the needs, benefits, and limitations of technology integration models in teacher preparation and propose a new model.

TPACK Model

TPACK is the most commonly used technology integration model among educational researchers. The goal of TPACK is to provide educators with a framework that is useful for understanding technology's role in the educational process. At its heart, TPACK holds that educators deal with three types of core knowledge daily: technological knowledge, pedagogical knowledge, and content knowledge. Content knowledge is knowledge of one's content area such as science, math, or social studies. Pedagogical knowledge is knowledge of how to teach. Technological knowledge is knowledge of how to use technology tools.

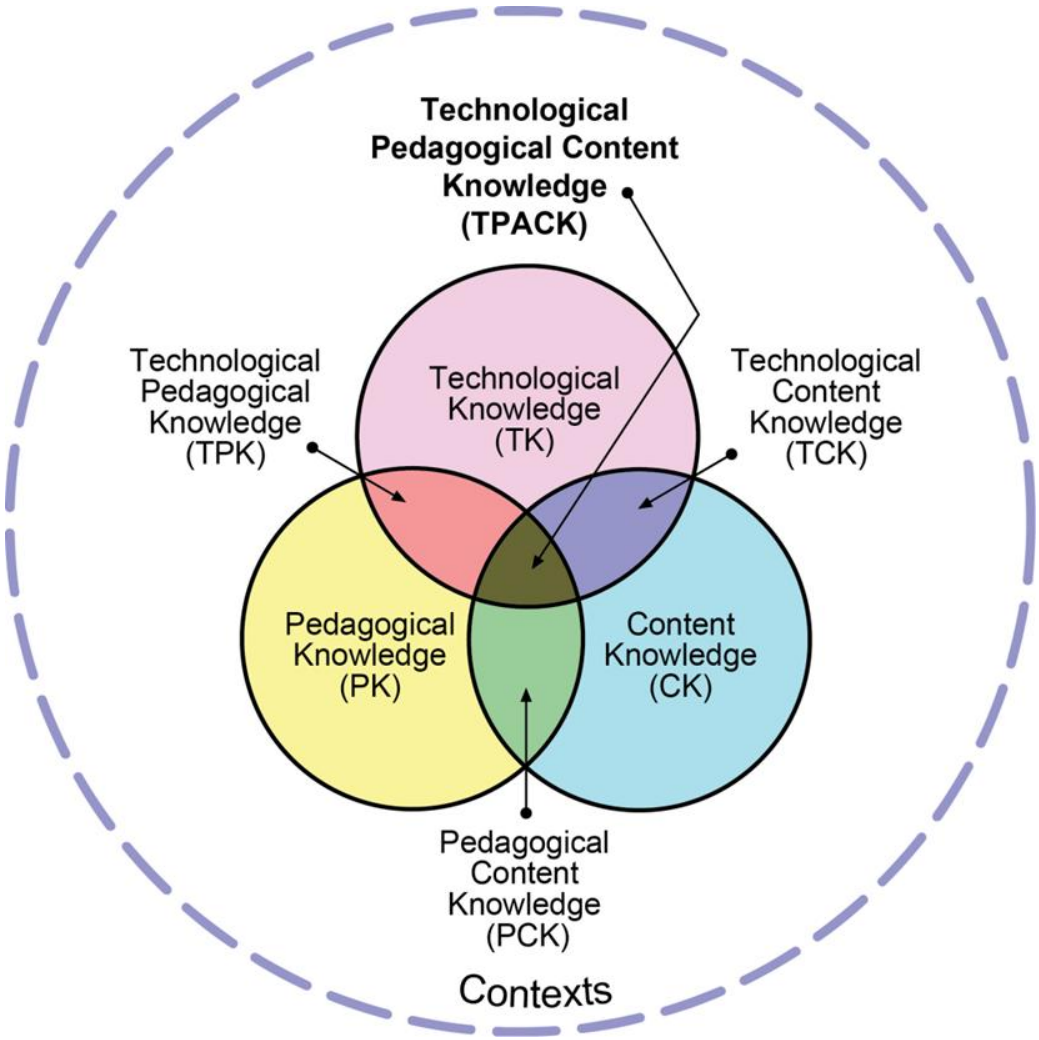


Figure 2.1: The TPACK model

These core knowledge domains, however, interact with and build on each other in important and complicated ways. For instance, if you are going to teach kindergarten mathematics, you must both understand mathematics (i.e., content knowledge) and how to teach (i.e., pedagogical knowledge), but you must also understand the relationship between pedagogy and the content area. That is, you must understand how to teach mathematics, which is very different from teaching other subject areas, because the pedagogical strategies you use to teach mathematics will be specific to that content domain. When we merge content knowledge and pedagogical knowledge together, a hybrid domain emerges called pedagogical content knowledge. Pedagogical content knowledge includes knowledge about content and pedagogy, but it also includes the specific knowledge necessary to teach the specified content in a meaningful way.

TPACK goes on to explain that when we try to integrate technology into a classroom setting, we are not merely using technological knowledge, but rather, we are merging technological knowledge with pedagogical content knowledge to produce something new. TPACK or technological pedagogical content knowledge is the domain of knowledge wherein technology, pedagogy, and content meet to create a meaningful learning experience. From this, educators need to recognize that merely using technology in a classroom is not sufficient to produce truly meaningful technology integration. Rather, teachers must understand how technology, pedagogy, and content knowledge interact with one another to produce a learning experience that is meaningful for students in specific situations, which the researcher intended to address by establishing the teachers' perception of the integration of TEL tools in teaching history and government based on parameters such: teachers experiences, gender, technology training, availability of technology tools and contribution of technology in teaching.

PICRAT Model

PICRAT. PIC (passive, interactive, creative) refers to the student's relationship to technology in a particular educational scenario. RAT (replacement, amplification, transformation) describes the impact of the technology on a teacher's previous practice. PICRAT can be a useful model for teaching technology integration because it (a) is clear, compatible, and fruitful, (b) emphasizes technology as a means to an end, (c) balances parsimony and comprehensiveness, and (d) focuses on students.

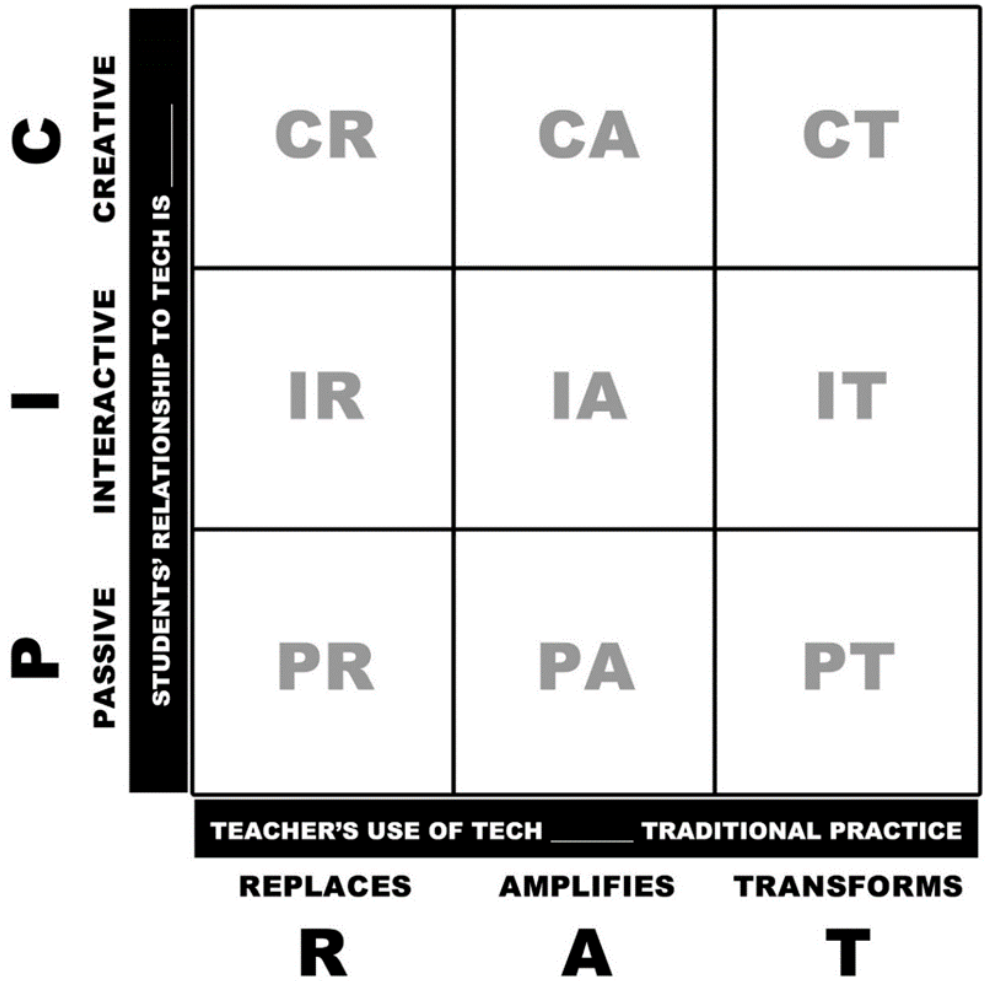


Figure 2.2: PICRAT Model

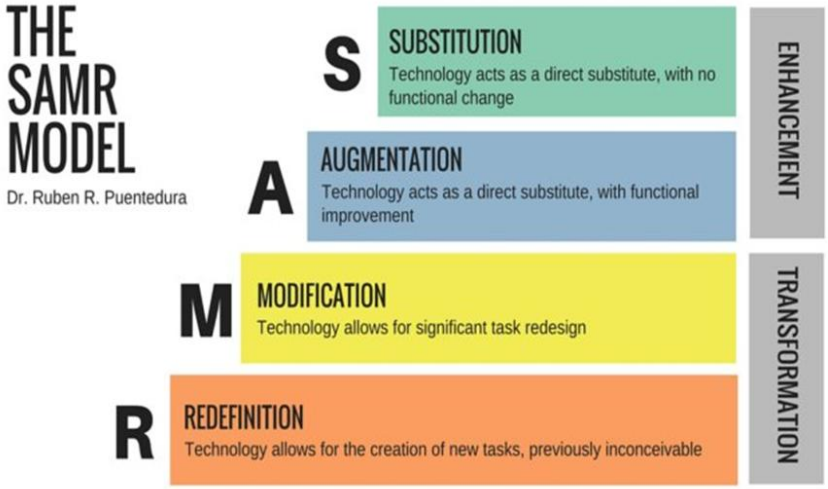
As a theoretical model to guide teacher technology integration, PICRAT enables teacher educators to encourage reflection, prescriptively guide practice, and evaluate student-teacher work. Any theoretical model will explain particular attributes well and neglect others, but PICRAT is a student-focused, pedagogy-driven model that can be effective for the specific context of teacher education —comprehensible and usable by teachers as it guides the most worthwhile considerations for technology integration.

We began developing this model by considering the two most important questions a teacher should reflect on and evaluate when using technology in teaching, considering time constraints, training limitations, and their emic perspective on their teaching. Based on research emphasizing the need for models to focus on students (Wentworth et al., 2009; Wentworth, Graham, & Tripp, 2008), our first question was, "How does this use of technology impact the teacher's pedagogy?"

Teachers' answers to these questions on a three-level response metric comprise what we call PICRAT. PIC refers to the three options associated with the first question (passive, interactive, and creative); and RAT represents the three options for the second (replacement, amplification, and transformation). This model focused more on students, however, the current study focused on teachers' perception of the integration of TEL in teaching history and government.

SAMR model

The SAMR model lays out four tiers of online learning, presented roughly in order of their sophistication and transformative power: substitution, augmentation, modification, and redefinition. When switching to an online format, teachers often focus on the first two levels, which involve replacing traditional materials with digital ones: converting lessons and worksheets into PDFs and posting them online, or recording lectures on video and making them available for asynchronous learning, for example.



Augmentation

This level involves incorporating interactive digital enhancements and elements like comments, hyperlinks, or multimedia. The content remains unchanged, but students can now take advantage of digital features to enhance the lesson. For example, students can create digital portfolios to create multimedia presentations, giving them more options to demonstrate their understanding of a topic. Instead of handing out paper quizzes, you can gamify your quizzes with tools like Socrative and Kahoot. Teachers can also create virtual bulletin boards using an app like Padlet—where students can post questions, links, and pictures.

Modification

At this level, teachers can think about using a learning management system like Google Classroom, Moodle, Schoology, or Canvas to handle the logistical aspects of running a classroom, like tracking grades, messaging students, creating a calendar, and posting assignments. Teaching online opens up new channels of communication, many of which can help students who have traditionally been marginalized. Research shows that girls may be less likely to speak up in class, for example, so they may benefit from backchannels—alternative conversations that can run alongside instruction—that encourage participation.

Redefinition

Learning is fundamentally transformed at the "redefinition" level, enabling activities that were previously impossible in the classroom. For example, virtual pen pals can connect students to other parts of the world, whether it's with other students or experts in a field. Virtual field trips enable students to visit locations like the Amazon rainforest, the Louvre, or the Egyptian pyramids. After reading a book in class, you can invite the author to chat about their work and answer questions. Technology also provides an opportunity to bring authentic audiences into your virtual classroom and can make publishers out of your students. Kids can write their

wikis or blogs for public consumption and feedback and platforms like Quad blogging can connect distant classrooms so students both write and respond.

The SAMR model's design is a hierarchical taxonomy. The model design does not consider the complex elements of teaching with technology. It defines and arranges teachers' uses of technology in very narrow ways. The current study was on the teachers' perceptions of the integration of TEL in the teaching of history and government at secondary schools in the Western Region of Kenya. It focused on complex elements such as the experiences of teachers on the use of TEL, the attitude of teachers towards the use TEL of, and the contributions of TEL in teaching history and government. The outcomes of the research based on those elements were used to design a model that considered those elements.

Technology Acceptance Model (**TAM**)

The technology acceptance model (TAM) is an information systems theory that models how users come to accept and use a technology. The Technology Acceptance Model (TAM) is a widely used model in the field of social sciences that explores the acceptance and usage of new e-technology. It is based on the belief that users' perception of a technology's usefulness and ease-of-use influences their attitude and intention to use it. The actual system use is the end-point where people use the technology. Behavioral intention is a factor that leads people to use the technology. The behavioral intention (BI) is influenced by the attitude (A) which is the general impression of the technology.

The model suggests that when users are presented with a new technology, a number of factors influence their decision about how and when they will use it, notably:

- Perceived usefulness (PU) - The degree to which a person believes that using a particular system would enhance their performance or will yield desired outcomes. It means whether or not someone perceives that technology to be useful for what they want to do.
- Perceived ease-of-use (PEOU) – The degree to which a person believes that using a particular system would be free from effort. If the technology is easy to use, then the barrier is conquered. If it's not easy to use and the interface is complicated, no one has a positive attitude towards it.

External variables such as social influence is an important factor to determine the attitude. When these things (TAM) are in place, people will have the attitude and intention to use the technology. However, the perception may change depending on age and gender because everyone is different. TAM postulates that the acceptance of technology is predicted by the users' behavioral intention, which is, in turn, determined by the perception of technology usefulness in performing the task and perceived ease of its use.

However, TAM model primarily focuses on individual perceptions of "perceived usefulness" and "perceived ease of use," potentially overlooking other crucial factors that influence technology adoption, such as organizational culture, social norms, or external constraints. The current study was on the teachers' perceptions of the integration of TEL in the teaching of history and government at secondary schools in the Western Region of Kenya. Which will factor in other crucial factors such as availability of TEL resources in schools.

III. Results And Discussion

Perception-based model on TEL Integration in teaching History & Government

The term model is used to mean a teaching episode designed by an experienced teacher in which a highly focused teaching behaviour is demonstrated, in it an individual demonstrating particular patterns which the learner learns through imitation. It is a way to talk and think about instruction in which **ce**rtain facts may be organized, classified, and interpreted. It is a way to talk and think about instruction in which certain facts may be organized, classified and interpreted. The term model can be used for imitation, description, explanation, prediction or persuasion. Instructional models can be designed to suggest how various, teaching and learning conditions are interrelated.

Began designing this model by considering four most important factors a teacher should reflect on and evaluate when integrating technology in teaching. The following four key constructs were considered: competence, importance, ease to use and availability.

Based on the results findings a perception-based instructional model was designed for technological integration using the Importance-Competence-Ease-Availability (I-C-E-A instructional model). This perception-based instructional model is anchored on four contextual factors (importance, competence, ease to use, and availability) contribute to the integration of technology in teaching history and government. The model is depicted in Figure 4.6. This section examines the meaning of these constructs (or factors) and the hypothesized relationships between these constructs as depicted in Figure 4.6. The discussion includes the proposed operationalization and the proposed measures of these constructs.

Perceived competence in the use of technology

To define the perceived technological competence of teachers in the integration of technology, the competence of teachers in the use of technology may be expressed in terms of the following constructs: Experience of teachers that is the extent of teachers' self-reported using technology, highest academic qualifications of teachers, technology training for teachers, level of training in technology and technology training program. TPACK model postulate how technology, pedagogy, and content knowledge interact with one another to produce a learning experience that is meaningful for students in specific situations. Therefore, when the above four constructs are combined, it results into something meaningful in relation to integration of TEL tools i.e. competence.

It was deduced that the extent of integration increases with the degree of highest education qualifications, technology training, level of training in technology and technology training programs attended by teachers. This is due to the fact the aforementioned constructs improve teachers' competence in integrating technology into history and government lessons. From the study findings, a majority of the teachers with higher levels of education, technology training, high level of training in technology and elaborate technology training program are very competent in terms of TEL tools integration in teaching history and government. This is because the above constructs give the self-efficacy required to integrate TEL tools and applications in teaching.

Perceived External factors in the use of technology

To define perceived external factors in the use of technology by teachers in the integration of TEL in teaching history and government, the external factors on the use of technology by teachers may be expressed in terms of the availability of TEL tools and applications. While designing this model, unlike the SAMR model design which is a hierarchical taxonomy and only considered simple elements such as augmentation and modification. Perception-based model considered complex aspect such as external factors which comprises of availability of TEL resources.

From the study findings, it was revealed that there were adequate TEL tools in the 8 national schools in the western region. Sadly, it was also revealed that despite the availability of some technology resources, some teachers were not using them in teaching. This could be a result of most teachers not being competent in the use of TEL tools because of inadequate technology training as reported by some teachers of history and government. For effective integration of TEL into teaching history and government in schools, it depends mainly on the availability and accessibility of TEL resources both hardware and software. If teachers cannot access TEL resources, then they will not use them. Therefore, access to technology resources is very key to the successful adoption and integration of technology in teaching. From the findings, TEL tools were available and in use whereas the TEL applications were not available and thereafter not in use. This is in agreement Technology Acceptance Model. TAM states that *External variables* such as social influence is an important factor to determine the attitude. When these things (TAM) are in place, people will have the attitude and intention to use the technology. That is to say, the availability of TEL resources will influence the perception of teachers towards the integration TEL resources in classroom.

Perceived ease to use technology

The degree to which an individual believes that using a particular technology would be free from effort. As an individual's perceived ease of use of a given technology increase, their intentions to use the technology also increase. The study established that teachers' perceptions of TEL were found to be a major predictor of teacher technology use. There is a direct link between teachers' perceptions and the integration of technology in teaching. That is to say, positive perception that technology is easy to use among teachers will influence a high uptake of technology in teaching and vice versa. The ease of use of technology resources is enhanced by adequate training for teachers in technology and availability of TEL resources for regular use.

It was revealed that Teachers with basic technological training skills such as cloud computing, computer literacy, word processor, data communication, networking skills, online assessment, and data analytics were integrating TEL resources more than those without. This is because, the above basic technological training skills build greater confidence in them towards the integration of technology than those without any technology training. Basic technological training, therefore, has a positive effect (enhanced TEL integration) on teachers' perception of technology integration in the classroom because it improves their skills which in turn improves their self-efficacy.

The above findings are in agreement with the assertions by Davis in his TAM model. He asserted that "if the technology is easy to use, then the barrier is conquered. If it's not easy to use and the interface is complicated, no one has a positive attitude towards it."

Perceived importance of the use of technology

Perceived importance is defined as the degree to which an individual believes that using a particular technology would be beneficial. Perceived importance may be a function of an individual's evaluation of a belief about usefulness and the strength of that belief. The study revealed that teachers had a positive perception of the contributions of TEL resources in teaching history and government. TEL integration can improve learners' capacity to relate the past and present events through watching videos, this can make learning easy and interesting. This aspect is very key to this study as change it the role of the teacher in the teaching and learning process to that of a guider. This increases the participatory role of the student. For effective integration of TEL resources, teachers of history and government have to perceive technology to be useful in achieving the set objectives.

These findings concurs with tenets of other instructional models such TPACK model and TAM model. TPACK or technological pedagogical content knowledge is the domain of knowledge wherein technology, pedagogy, and content meet to create a meaningful learning experience. From this, educators need to recognize that merely using technology in a classroom is not sufficient to produce truly meaningful technology integration. Rather, teachers must understand how technology, pedagogy, and content knowledge interact with one another to produce a learning experience that is meaningful for students in specific situations. On the other hand, TAM model postulates that, whether or not someone must perceives that technology to be useful for them to use it.

Perception-Based Model for Technology

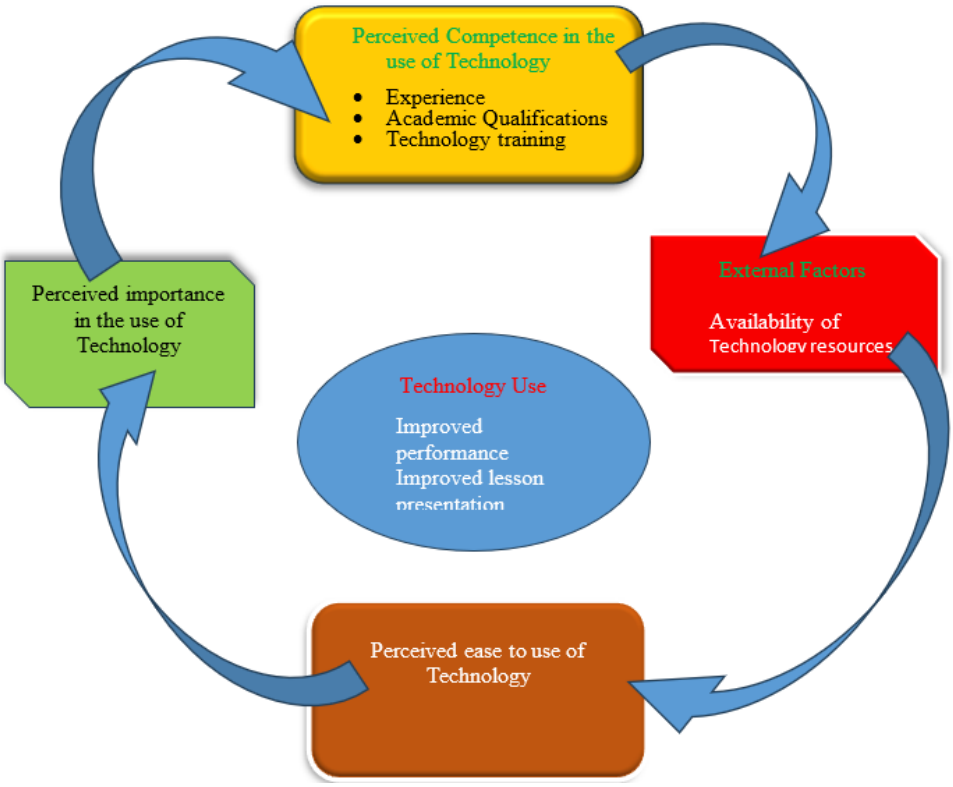


Figure 4.6: Perception -Based Model on Technology integration