xIlkogretim Online - Elementary Education Online,2021; Vol 20 (Issue 5): pp.3717-3727
http://ilkogretim-online.org
doi: 10.17051/ilkonline.2021.05.408

Levels of ICT Integration INTO TEACHING OF TEACHERS OF ENGLISH, ENGLISH DEPARTMENT, UNIVERSITY OF FOREIGN LANGUAGE STUDIES, THE UNIVERSITY OF DANANG- FACTS AND RECOMMENDATIONS

Pham Thi To Nhu, University of Foreign Language Studies, the University of Danang, Vietnam, pttnhu@ufl.udn.vn
Huynh Ngoc Mai Kha, University of Foreign Language Studies, the University of Danang, Vietnam, hnmkha@ufl.udn.vn

Abstract - Information and Communications Technology (ICT) has become more and more popular in education in general and in teaching English in particular. Moreover, in order to keep pace with the needs of modern society, each teacher should equip himself with the ability to apply ICT into teaching. However, this issue is rather new and requires much effort from individuals as well as relevant authorities. Based on the background of ICT application in teaching, the study of ICT integration into teaching at university as well as explaining the reasons would be done and then, some recommendations would be given so that the levels of ICT integration of teachers of English, English Department, the University of Foreign Language Studies (UFLS), the Unviersity of Danang (UDN) would be improved.

Key words*:* Information and Communications Technology; teaching; level of ICT integration; recommendations; facts, teachers

I. INTRODUCTION

Integrating ICT in teaching and learning is high on the educational reform agenda (Peeraer and Van Petegem, 2011). Often ICT is seen as an indispensable tool to fully participate in the knowledge society (UNESCO, 2003a). ICT needs to be seen as a toolkit in the 21st century, facilitating new and transformative models of development (Rahimi & Yadollahi, 2011). For developing countries, ICT can moreover be seen as a way to merge into a globalising world (Peeraer & Van Petegem, 2011). It is assumed that ICT brings revolutionary change in teaching methodologies (Peeraer and Van Petegem, 2017). The innovation lies not in the introduction and use of ICT, but in its role as a contributor towards a student-centred form of teaching and learning (Sarkar, 2012). Thanks to ICT, the quality of education can be improved in a number of ways, including augmenting student enthusiasm and commitment, helping students acquire fundamental skills, and improving teacher training (Plomp et al.,1996; Voogt, 2003; Sarkar, 2012). Besides, with the help of ICT, as tools which enable and bring about transformation when used properly, the shift to a learner-centred environment in education can be achieved (Drent, 2005).
However, studies have consistently shown that ICT integration shows disappointing levels of penetration and success (Cuban, Kirkpatrick& Peck, 2001; Bauer & Kenton, 2005; Dang, 2013). Recently, it has been pointed out that there are crucial teacher attributes including perception, belief and attitude which play an important part in the acceptance or rejection of ICT (Jimoyiannis & Komis, 2006; Vanderlilnde, 2011). Moreover, according to Loveless (2006), teachers are aware of the ubiquitous presence of ICT in their teaching environment, but may not perceive the link to their teaching practices. In reality, teacher perceptions on ICT use is important as it forms a tendency that helps them to be either favourable or unfavourable towards the usage of the most modern technology in the field of education (Qasem & Viswasnanthapa, 2016). In Vietnam, this situation is not different, with a poor penetration of ICT in teaching (Hong, 2014).Henceforth, this study was carried out in order to better understand the current level of ICT integration of teachers of UFLS, UDN. By identifying such current levels, it is hoped that concrete mitigating steps can be taken to improve the ICT integration.

II. REVIEW OF LITERATURE

Definition of ICT

The term 'ICT' is defined as "forms of technology used for creating, displaying, storing, manipulating, and exchanging information" (Donnelly, McGarr, & O'Reilly, 2011). However, in the scope of this paper, ICT is defined as computer, and the internet-based technologies which can be categorised into two types: i) generic software applications, e.g., word processors, presentation software, email packages, and web browsers; and ii) CALL software applications and useful websites with a focus on purposeful language teaching and learning(Sarkar, 2012).

ICT in LanguageTeaching and Learning in the World

In terms of ICT integration in English learning, on the one hand, Collis and Moonen (2001) divide the integration of ICT into three groups, namely 'learning resources' including educational software, online resources, and video resources. 'Instructional organisation of learning' refers to software and technology tools for lecturing in the classroom, and 'communication' consists of email systems and websites offering communication options. On the other hand, New Media Consortium (2005) claims that technological areas contribute to the field of education as follows. The first one is Extended Learning, in which traditional teaching and learning is enhanced through new communication tools which mean that the process of teaching and learning is not confined to the classroom setting but to a communicative platform that facilitates collaborative discussion, exchange of opinions, and critical thinking (Cheng, 2012). The second area is called Ubiquitous Wireless where there is the rapid penetration of wireless networks (Jung, 2006) which can foster students' flexibility in learning via the use of their portable or mobile devices. The third one is Intelligent Searching which allows learners to search, organize, and retrieve data in a more effective way (Dang & Nguyen, 2014). And the last one is Educational Gaming, which is made up of games and simulations which are supposed to have beneficial effects on motivation, communication, critical thinking, and problem solving skills (Jung, 2006).

Thanks to its various and extensive applications, ICT can be an effective medium for language teaching (Dang, 2013). More specifically, in language teaching and learning, there are many different ways of ICT integration including using it as a location and retrieval tool (Davies & Hewer, 2012), an interaction tool (Newhouse, 2002), a teaching tool (Peeraer & Van Petegem, 2012) and a material creation tool (Rendall and Davies, 2012).

ICT in Language Teaching and Learning in Vietnam

According to Downes (2013), a great deal of international attention has been given to the role that ICT can take in economic, social and educational change. Besides, Peeraer and Van Petegem (2011) claim that it has become a question of national leadership for many developing countries in giving high priority to educational improvement programs and providing necessary resources and expertise to succeed. As a matter of fact, an ICT Masterplan for ICT in Education for the period 2001-2005 was launched by the Ministry of Education and Training of Vietnam (MOET) in 2000, and aimed to realise directions for information technology (IT) development and application in education (Peeraer & Van Petegem, 2011). In the conclusions of the ICT Masterplan, the logic behind the integration of IT in education is very clearly formulated as follows:

"IT in education will make big changes in teaching and learning methods and in educational management. These, in turn, will strengthen quality of education, create better human resources, and develop the country in general…" (Syed & Amin, 2009, p.5)

According to this plan, Peeraer and Van Petegem (2011) mention two main objectives as follows:
i. To meet the demand of IT human resource development to serve building an IT industry as a key industry in Vietnam, and a wider IT application to promote socio-economic development of the country;
ii. To meet the demand of educational reform in terms of innovation in content, teaching and learning methods, as well as in educational management.

Prior directions set out focus on building IT infrastructure for education and training, and developing human resources, but also stress IT as a learning object and application for teaching and learning in schools,

vocational education, universities and colleges, and as a tool for educational management. Even though ICT development is seen as a technical development as well as an educational development (UNESCO, 2003a), most clear measures target improved access and ICT literate educators. The Master plan pays a lot of attention to building an IT infrastructure for education and training: all education institutions have to be connected to the Internet, universities and colleges have to build their own network, and the MOET will set up and use EduNet as an educational portal (MOET, 2008). IT training for all teachers is a key factor in using computers for teaching and learning (MOET, 2009). Up to 2005, the aim is to train more than 25,000 IT specialists. Important measures emphasise strengthening the quality of training, and meeting the needs of society. Setting up new IT faculties, encouraging second degree training in IT for graduates, and joint training programmes are other measures to reach the aim (MOET, 2008). In 2003, UNESCO's country report of Vietnam states that the country has been eager to be one of the hubs for ICT development in South-East Asia (UNESCO, 2003b). Nevertheless, efforts are still being made to tinker with the establishment of infrastructure in order to secure greater access for the Vietnamese to ICT (Syed & Amin, 2013).

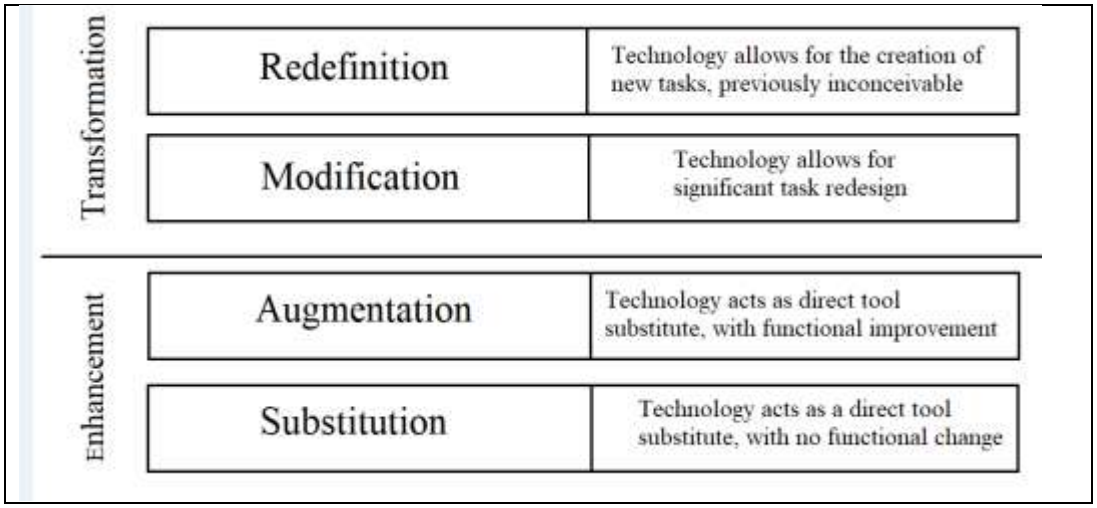
Framework for Measuring Levels of ICT Integration

In this study, the SAMR Model by Puentedura (2006) was used. This model is widely recognized and used in the educational technology field (JISC, 2015). In effect, this model provides a framework that can be used to classify and evaluate ICT integration (Puentedura, 2013). Also, according to Floris and Renandya (2019), the SAMR model helps to describe the path by which technology can be systematically embedded in teachers' instructional practices. As a matter of fact, Puentedura (2013) believes that this model could help enhance the quality of education provided via technology. According to Puentedura (2013), the SAMR model consists of four classifications of technology use for learning activities:

* *Substitution:* The technology provides a substitute for other learning activities without functional change.
* *Augmentation:* The technology provides a substitute for other learning activities but with functional improvements.
* *Modification:* The technology allows the learning activity to be redesigned.
* *Redefinition:* The technology allows for the creation of tasks that could not have been done without the use of the technology.

All these four classifications are demonstrated in Figure 1.

Figure 1: The SAMR Model



Source: Puentedura (2013)

In terms of categorising the level of technology integration in the classroom, the SAMR model can be applied as follows. (1) Substitution is understood as a novel read in an online version like an e-book, for example, replacing traditional practices with the use of technology. (2) Augmentation focuses on dictionaries, study guides, or history sites linked to an online text. (3) Modification focuses on textual, visual, and audio tools for construction and knowledge. (4) Redefinition focuses on visualization of narrative and structural aspects of a text (Puentedura, 2012; Myers, 2014; Jude, Kajura & Birevu, 2014; Lund, 2015). In a more specific way, Substitution is the use of technology for a task that could be

accomplished without technology. Augmentation provides a technological improvement for a task that could be completed without technology. Modification allows for a preexisting task to be significantly altered in a way not possible without technology; and Redefinition would be the creation of a completely new task not possible without technology (Hilton, 2014). In SAMR model constructs, Substitution and Augmentation represent technology usage that enhances effectiveness of existing non-digital resources, whereas the Modification and Redefinition constructs describe when a technology or application leads to transformation (Hudson, 2014). In addition, Kirkland (2014) holds the viewpoint that the key to using the SAMR model is not to think of it as a progression to work through but that really using technology effectively means creating opportunities that do not exist without the use of technology. Furthermore, thanks to the SAMR model, each learning task can be examined to determine the depth and complexity of technology integration (Kirkland, 2014). In terms of the attributes that the SAMR model embodies, Kihoza et al. (2016) synthesize them at different levels as shown in Table 1.

Table 1: SAMR Attributes

SAMR constructs	**The Attributes Assessed by This Study**
Substitution	- Digital use of presentation as opposed to posters, for example. - Presentation directly projected to students via TV or computers. - Using audio/video for students in teaching instead of reading the text to students in class.
Augmentation	- Creating multimedia presentations using scanners and/or hyperlinked audio. - Using office applications (e.g. word processors, presentations, etc.) - Accessing online resources by use of computers (e.g. email, Internet). - Creating presentations using computers.
Modification	- Audio/video editing. - Simulation/animation applications. - Web Tools 2.0. - Learning to use new pieces of software to design activities that integrate technology.
Redefinition	- Supporting learning activities for individuals, and small and large groups using technology. - Accessing students' learning using technology.

Taking all these into consideration, this study aims to examine the current level of ICT integration of teachers at UFLS, UDN using SAMR model. The following research questions were used to guide this study**:**

- To what extent do teachers of UFLS, UDNintegrate ICT in their teaching?
- What recommendations are suggested to improve the level of ICT integration?

III. METHODS

This study utilised a qualitative research design to address the research questions. As a matter of fact, Hancock et al. (2007) claim that qualitative research helps develop explanations of social phenomena. Furthermore, Denzin and Lincoln (2000) hold the viewpoint that 'qualitative researchers study things in their natural setting, attempting to make sense of, or to interpret phenomena in terms of what people bring to them' (p.3). This kind of research design is chosen for this study as it facilitates the researcher to find out the most appropriate results, and the researcher could explore meanings and insights in a given situation (Strauss & Corbin, 2008; Levitt et al., 2017).The methodology selected for this study is case study, which refers to an empirical inquiry developing an in-depth understanding of a real-life phenomenon (Yin, 2009). In case study, the researcher seeks to develop an in-depth, multi-faceted understandingof the case by collecting multiple forms of data (Creswell, 2012). Cohen, Manion, and Morrison (2011) hold the viewpoint that in a research, the situations are changing all the time instead of keeping fixed and they are all affected by the. Also, according to these authors, with the help of case studies, researchers could observe effects in real contexts; henceforth, context is a powerful determinant

of cause and effects as well (Cohen et al., 2011).
In this case study, the study was built up on a combination of different sources of qualitative data including participants' focus group interviews and the researcher's observation notes. The case in this study was organised among 20 lectures of English Department, UFLS, UDN, Vietnam. The focus group interviews in this study were conducted in order to reflect emotions and experiences, and explore issues with a greater focus(Denscombe, 2004). For observation which can help get to what people actually do or say, rather than what they say they do, this kind of data is quite useful as it can provide good insights into how the different participants are behaving and interacting as well as providing contextual information needed to frame the evaluation and make sense of data collected using other methods (Cohen, Manion & Morrison, 2013).

The process of data collection started with the lesson observations which were carried out throughout the semester with all the teacher participants at UFLS, UDN. During the observations, the researcher used a checklist, and took field notes of the teaching and learning process, paying close attention to how ICT was integrated in the teachingBesides that, the teacher participants were also asked to join interviews to reflect the affordances and challenges they faced when they try to integrate ICT in their teaching process.

IV. FINDINGS

Research question 1

The two sources of data namely transcripts from the focus group interview and field notes from observation would be collected and analysed manually. The presentation of findings was done according to themes merged from synthesising the data and was presented one by one for both of the two groups via their attributes according to the SAMR model (Puentedura, 2012), with four levels including Substitution, Augmentation, Modification and Redefinition.

The transcript from the focus group interview would be analysed according to the tools the teacher participants used in their teaching to find out the level of ICT integration. Table 2 showed the description of tools and their corresponding attributes in details.

Table 2: Description of Tools Used by the Teacher Participants and Their Corresponding Attributes- Data from Focus Group Interviews

Tools	**Corresponding Attributes**
Word processing	Using office applications (e.g. word processors, presentations, etc.)
Microsoft PowerPoint	Using office applications (e.g. word processors, presentations, etc.)
Search engines	Accessing online resources by use of computers (e.g. email, internet)
Audio and video	Using audio/video for students in teaching instead of reading the text to students in class
EslVideo.com	Web Tools 2.0

As can be seen from table 2, the teacher participants used five tools in their teaching including word processing, Microsoft PowerPoint, search engines, audio and video and EslVideo.com. The first two tools have the same attribute, which is using office applications (e.g. word processors, presentations, etc.), i.e. the second attribute of Augmentation level. The following is an excerpt from the transcript.

'I know that using ICT in my teaching is very useful as it may help me to save my time and it will have great effect to students but my ICT use is quite limited because I am not confident in using ICT in my class. I can only use PowerPoint and some audio.'
Through the focus group interview, it could be realised that most of the teacher participants used word processing and PowerPoint to prepare lessons and prepared for their presentation in class.

In terms of tools related to audio and video which belong to the attribute of using audio/video for students in teaching instead of reading the text to students in class (i.e. the third attribute of the Substitution level), there are some excerpts from the transcript as follow.

'I know that using ICT in my teaching is very useful as it may help me to save my time and it will have great effect to students but my ICT use is quite limited because I am not confident in using ICT in my class. I can only use PowerPoint and some audio.'
'I can hardly find suitable audio for my teaching'

It can be realised that the teacher participants in this group did not feel comfortable to use audio/video in their teaching.

Beside word processing, Microsoft PowerPoint, and audio/video, some teacher participants also mentioned search engines which belong to the third attribute of the Augmentation level.

In relation to the third attribute of Modification level, i.e. Web Tools 2.0, EslVideo.com was mentioned in the focus group interview as follow.

'EslVideo.com is effective in helping me create more interesting exercises, teaching effectively.'

It is seen that Web Tools 2.0 had some effect in the teaching of this group.

In short, the teacher participants used five main kinds of tools which have the attributes of Substitution, Augmentation and Modification levels.

The field notes of all the teacher participants were examined in detail for their level of ICT integration as shown in Table 3 as follows.

Table 3: Description of ICT Integration of the Teacher Participants- Data from the Field Notes from Observation

Parent Code	**Theme**	**Frequency**	**Percentage**
SUBSTITUTION	Digital use of presentation as opposed to posters for example	10	100%
	Presentation directly projected to students via TV or computers	10	100%
	Using audio/video for students in teaching instead of reading the text to students in class	10	100%
AUGMENTATION	Creating multimedia presentations using scanners and/or hyperlinked audio	1	10%
	Using office applications (e.g. word processors, presentations, etc.)	10	100%
	Accessing online resources by use of computers (e.g. email, internet)	5	50%
	Creating presentations using computers	10	100%
MODIFICATION	Audio/video editing	0	0%
	Simulation/animation applications	0	0%
	Web Tools 2.0	4	40%
	Learning to use new pieces of software to design activities that integrate technology	4	40%
REDEFINITION	Supporting learning activities for individuals, and small and large groups using technology	0	0%
	Accessing students' learning using technology	0	0%

As can be seen from Table 3, all of the teacher participants demonstrated all of the three attributes of

Substitution level as all of the field notes showed that all of teacher participants used digital presentation and all of their digital presentation was connected via computers. Besides, all of the teacher participants were observed to have used audio/video in their teaching.

In terms of the attributes of Augmentation level, all of the teacher participants displayed attributes of using office applications (e.g. word processors, presentations, etc.) and creating presentations using computers as all of them were observed to use office application in their teaching and/or preparing lesson plans for their teaching and use presentations created by themselves in their teaching. Relating to the attribute of creating multimedia presentations using scanners and/or hyperlinked audio, only two teacher participants, Teacher 7 and Teacher 17, used slides made by PowerPoint with an audio linked inside in class on September 22, 2019. Concerning the attribute of accessing online resources by use of computers (e.g. email, internet), ten teacher participants owned this attribute.

With regard to the four attributes of Modification, none of the teacher participants were observed to display the first two attributes, i.e. audio/video editing and simulation/animation applications. In relation to the third attribute, i.e. Web Tools 2.0, eight teacher participants displayed this attribute. For example, Teacher 8 used a video taken from EslVideo.com in class on September 19, 2019. Regarding the last attribute of this level, i.e. learning to use new pieces of software to design activities that integrate technology, 40% of the teacher participants in this group were observed to display this attribute.

As to the two attributes of Redefinition level, none of the teacher participants achieved them.

In short, in addition to all of the attributes of Substitution and Augmentation levels, some of the teacher participants in this group demonstrated two attributes of the level of Modification.

From the analysis of the data, it could be seen that the teacher participants achieved attributes that were limited to only the Modification level.

Research question 2

Data from the transcript of the focus group interviewed would be analysed to find out the answer for research question 2. The data was analysed manually according to themes including *suggestions for teachers, suggestions for ICT facilities, suggestions for teaching policies, suggestions for human resources.*

i. Suggestions for teachers

The teacher participants mentioned the need of effective training in their suggestions. For example, one teacher said, *'We need effective training that matches with our teaching situation.'*

Besides, many teacher participants needed financial support for ICT facilities. Below are some illustrations of this.

'Each school needs to invest more in facilities so that teachers and students can access it easily.'

'Therefore, in order to promote the effective application and development of information technology in teaching, **it is necessary to pay attention to the infrastructure of all levels**, the synchronous direction of the industry - of each school, and especially the effort to learn and learn from each teacher as well as better Internet connection.'

ii. Suggestions for ICT facilities

In terms of ICT facilities, most teacher participants expressed their desire to have better Internet connection to facilitate their teaching.Below are some illustrations of this.

'Last, **the Rector and the MOET should upgrade the Internet connection** so that we can teach more effectively with the usage of ICT.'
'With **good Internet connection**, our teaching would not be interrupted.'
'**Schools should provide good facilities for ICT**. We need more ICT facilities so that we don't have to compete with other colleagues of other subjects in using those facilities.'

iii. Suggestions for teaching policies

Regarding to the suggestions of this part, there are suggestions relating to policy encouraging ICT integration in teaching and reducing the size of classes. There are some excerpts as follows.

'**We need to be awarded for using ICT in our teaching** as our students are motivated.'
'In order to overcome these challenges, **the MOET should issue a proper policy to encourage the application of ICT in class**.'

'The last but not least, **if our class has fewer students, teaching English to them, especially speaking, is much easier and more effective**.'

V. DISCUSSION AND IMPLICATIONS

The previous sections outline the levels of ICT integration of teacher at UFLS, UDN and points out suggestions for improving such levels. With the use of SAMR model to uncover the levels of ICT integration, it was revealed that100% of teacher participants are at the stage of Enhancement in the SAMR model in which 40% of them reached the level of Substitution and 60% of them reached the level of Augmentationin their ICT integration.The ICT integration level of the teachers is at the enhancement stage only and none of them reach the transformation stage of the SAMR model.This is quite understandable due to the limited facilities at the site and the lack of confidence of the teachers in using ICT in their teaching (Peeraer & Van Petegem, 2011; Downes, 2013). Pham (2014) and Nguyen (2016) found similar results and that the level of ICT integration in teaching English in Vietnam is still at a low level. This is also supported by Le and Nguyen (2017) and Huynh et al. (2018).
In order to increase ICT integration, that teacher participants 1 felt a greater need for effective ICT training.This is quite in line with what Preston et al. (2000)claim in their work, that a lack of appropriate ICT training is the key barrier to successful ICT integration in teaching (Preston et al., 2000).With regard to financial support for the Subject of the Activity System, it is suggested that teachers should be sponsored to have their own ICT facilities and they also recommended self managing with ICT facilities available. As a matter of fact, the cost of such equipment is a burden to teachers, and may lead to a decrease of ICT use in teaching in other studies (Beggs, 2000; Wee & Bakar, 2006).

For these kinds of suggestions, it is hard for any organisation, including the MOET, to solve all of these issues quickly with reference to this part, as its budget is limited (Anh, 2018). Instead, the MOET and its relevant authorities should set up more professional learning community centres for teachers so that they can have a safe and conducive environment to improve their own knowledge (Vescio, Poss & Adams, 2008; Nirmal, 2016; Lee & James, 2018). Besides, teachers should seek sponsorship from different organisations, such as Parents' Associations or local companies, to have the necessary ICT facilities for their teaching.
There are many suggestions from the teacher participants for theICT facililties, all of which arerelated to upgrading Internet connections and more investment on ICT facilities. All these suggestions are in line with studies by Borko et al. (2009) and Downes (2013).

As regards to the suggestions in this part, the MOET is the key figure in facilitating the use of ICT at schools. Therefore, MOET needs to be more efficient in allocating their budget particularly towards the provision and maintenance of ICT facilities to needy schools (Anh, 2018). Besides, the Rector at each school should not passively wait for the budget from the MOET, but he/she should call for more budget from different sponsors in his/her area to improve his/her school facilities in order to enhance the teaching and learning environment. In addition, local organisations such as Parent Teacher Associations could play an effective role in supporting ICT facilities for teachers by raising funds or calling for donations from local companies.

Relating to suggestions dealing with teaching policies, the teacher participants require smaller sizes of classes and a policy encouraging the integration of ICT in their teaching, which is in line with the study of Dang (2013)that mentions: 'In Vietnam, there was a lack of public recognition or akcnowledgement forbest practices. Those who implemented ICT effectively in their teaching did not receive any rewards or official recognition. In addition, no penalty was applied to teachers who did not use ICT.' (p.41). As regards these kinds of suggestions, the Rector and MOET should have suitable policies

together with rewards to encourage ICT integration among teachers. Besides, there should be an annual or biannual meeting on the curriculum so that there would be an adaption to meet the needs of both teachers and students. The size of classes cannot be reduced immediately due to the current situation of a developing country like Vietnam (MOET, 2017). However, the Rector of each school should make good use of apprenticeship training from different universities in Vietnam every year to support teachers in their classes so that the burden due to oversized classes could be reduced (Education Law, 2017).

VI. CONCLUSION

This study was initiated to uncover the level of ICT integration of teachers at UFLS, UDN, Vietnam using SAMR model. In doing so, there are a number of limitations that have to be acknowledged. First, the sample was small due to fact that the study was carried out in a department of a university. Second, the study only focused on university; hence the findings were limited in scope. Future research with diverse contexts and more types of schools would be able to yield richer and deeper findings.

On the grounds of the study, some suggestions are mentioned including those of teachers, those of ICT facilities and those of teaching facilities. This study is important as it helps to shed more light on the real levels of ICT integration of teachers in their teaching as well as recommending suggestions on improving such levels. The result of this study could be used by provincial and national leaders in Vietnam to facilitate the development of policies related to ICT implementation and teacher training.

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