LANGUAGE LABS: THE LOOP OF THE FEATURES, MATERIALS, AND FUNCTIONS

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Abstract: The implementation of Computer-Assisted Language Learning (CALL) in educational institutions has been projected to be inseparable from the language laboratory, short as lab, for decades. This study investigated the current implementation of CALL in ten universities in Bandung, Indonesia, by mapping the features, CALL materials, and functions of the language labs. The data was collected through observation and interviews. There were four findings of this study. First, there were common CALL materials and distinguished ones among the participating universities. Second, there were three types of language labs found according to their common features. One category is the integrated CALL lab, and the other two categories were considered as the transition from one type kind of lab to another. Third, there were four purposes of language labs: test preparation, skill development, pedagogical knowledge practice, and varied. Fourth, the three aforementioned aspects were found to influence one another. These findings provide information that language laboratories in Bandung to some degree vary. It also suggests that one aspect will determine the others and results in the setup or management of a language laboratory.

Keywords: *Computer-Assisted Language Learning (CALL); language laboratory; CALL materials; EFL; higher education.*

INTRODUCTION

The world we live today has been witnessing the rapid development as well as incremental use of technology in all walks of life. In education, technology has become an essential part as noted by Harris and Al-Bataineh (2015) that it is so as technology allows instant dispersion of knowledge, faster and more effective communication and new way of students' learning as well as engagement. This is also true in the field of English language education for its affordance in enhancing the content and delivery of the traditional English language instruction (Alqahtani, 2019). It is clearly seen, then, that the integration of technology into education is not a mere case of jumping-into-the-band-wagon proverbial act. Rather, it is built on a strong basis of reaping the full potentials along with the benefits it brings to education world in terms of both organization and pedagogy.

In Indonesia, the integration of technology into English language education is generally conducted in language laboratory. Referring to its definition found in the American Heritage Dictionary, language labs are described as rooms equipped with *tape recorders*, *video cassette recorders* or *computers* connecting to *monitoring tools*. That is to say, as part of modern language teaching, language labs are installed with audio or audio-visual equipment (Victoria, 2019). These tools allow the teachers to listen and speak to their students both individually and/or in groups (Bera, 2017, p. 135).

The presence of language laboratory in an EFL setting is not uncommon for its popularly known function in creating the atmosphere of target language (Lokmacıoğlu, Küçükyılmaz, & Balıdede, 2015). As Al-Ameedi, Ibrahim, and Nayef (2019) mention, language labs make materials produced by native speakers accessible, which in turn help

learners to improve their language skills into native-like production. Therefore, all levels of education, not to mention higher education both state-owned and private institutions feel the need of establishing their own English language laboratory in which complementary activities for English classes are conducted.

The situation emerges as classrooms which are used for all other subjects are thought restricting language learning process such as listening and speaking activities which usually require the use of learning technology such as MP3 players and recordings. Therefore, the existing of language labs helps learners improve their communication skills as Bera (2017) says that the general function of the Language lab is to train learners of language skills, namely listening, speaking, reading, and writing so as to help them. Therefore, Krishna (2021) believes that it is imperative for academic institutions to have language lab with good quality to give learners chances for practical aspects of language learning process.

The beginning of the Language lab was inseparable from the early discovery of the phonograph by Thomas Edison in 1877 (Lokmacıoğlu et al., 2015; Roby, 2013), which years later was used by Frank C. Chalfant, who installed a *phonetics laboratory* at Washington State College at Pullman, USA, in 1911. In this lab, the students used networked earphones to listen to the phonograph and speak to the phonograph-recording machine to later compare their pronunciation with that of the native-speaker model.

After the discovery, this idea was used by the US army and naval for language training during the Second World War. This special training was carried out in a rigid study room known as a cubical that separated the learner one to another. In each cubical, there was a record player that trained the soldiers to be able to listen to and speak the language that they were trained. For that reason, this method is called "mim-mem" (Roby, 2013).

Even though this method was based on the behaviorism perspective, it got a lot of criticism in the field of pronunciation so the term *drilling and killing* arose. Lab with layout and learning methods like this is known as the Structural Lab. In this type of lab, the main feature of the language lab is audiocassette with tools that can rotate, repeat, and stop it. Learning booths and isolated headsets are also the main features of this period. According to Balamayuranathan (2019), this is the time when analogue technology was implemented. In this era, the implementation of CALL is also called *Behavioristic CALL* (Warschauer & Healey, 1998). Because of the many criticisms, the Structural Lab ended in the early 1970s.

After the period of the World War II, as the American government began to focus on education in mathematics, science, and foreign languages, the Communicative Lab with more features enabling greater opportunities for individual to work on the computer started. This lab corresponds with the cognitive theories stressing that students learn through the process of discovery, expression, and development. Thus, the interaction occurs in the Communicative Lab not only between the learner and the computer itself, but also other people such as the instructor and other learners.

During the Communicative Lab, the main feature of the lab was computers, the more open learning booths equipped with computers on it, and the existence of consoles and / or LAN (the Local Area Network). With or without a console, the LAN connects the teaching computer with the learner. Instead of a console, the learning environment software is used. These features allow instructors to manage class management and use CALL materials such as software, videos, learning packages (courseware), etc.

Along with the development of the computer-based technology, the role of the internet has begun to dominate so that the face of the lab changed from the Communicative Lab to the Integrative Lab. The Integrative Lab, according to Warschauer and Healey (1998), is the use of computer-based technology by integrating skills (speaking, listening, reading, and writing) and by integrating different types of computer-based technology. Further, Abdulla and Kumar (2017) add that this integration of various media gives way to a natural integration of the four language skills in a single activity.

As such, it is predictable that the implementation of Computer-Assisted Language Learning or CALL is clearly seen in the running of language laboratories. Although it has been implemented since the 1950s (Chapelle, 2001), the use of Computer-Assisted Language Learning (CALL), was recorded no later than the early 60's (Davies, Otto, & Rüschoff, 2013). In a simple way, CALL can be defined as the use of computer-based technology for language learning purposes.

For this learning purposes, computer is treated as a medium that connects the teacher, student, and language itself. This medium becomes a tool to facilitate language learning and teaching. Usually, the computers store the entire course resources and students access the resources based on the features available in the system (Williams, 2020).

As a tool, the computer is in general constructed from two main parts: hardware and software (Peace & Mabel, 2016). The hardware refers to any units of a computer which physically can be touched or seen. Nurchalis, Ermawati, Sardi, and Nursabra (2021) simply put it as machine. Hardware includes units for command input such as a mouse, keyboard, and microphone; for processing such as processor and RAM; for output such as a printer, monitor, and speaker; and for connection such as hub, switch, bridge, router, and access point. While hub, switch, and bridge are used in Local Access Network (LAN), router and access point are used to connect the computer to the internet.

The software, on the other hand, can be defined as any program giving specific tasks to the computer (Long & Long, 2002, p. 33). By nature, the hardware will enable the software to run, and the types of hardware will determine what types of software can be run on a specific computer. In general use, software has come in a vast variety such as text displayers, audio players, text creators, audio creators, video makers, etc. Benjamin (2018) mentions that language labs typically make use of basic software as well as open- or closed-ended content software, depending on the adaptability of the stored sources.

In CALL specifically, it also has been offered in various types including vocabulary or grammar games, quiz makers, computer-mediated communication (CMC) tools, and courseware. In fact, Levy and Stockwell (2006) put software as one form of CALL materials in addition to learning packages, websites, online classes, or learning environments, as Levy (1997) defines CALL materials as teaching materials made by utilizing computer technology.

Therefore, it was interesting to study the implementation of CALL in language laboratories in foreign language learning setting covering the interrelation of their features, selection of CALL materials and functions. Few, if none, studies echo this curiosity. It is so as most studies related to the integration of technology into language learning activities in Indonesia so far are exclusive to certain software, website, courseware, etc. Some of them are the studies on the use of *Edmodo* (Abdulrahman, 2016; Pardede, 2019), *Quizlet* (Wahjuningsih, 2018), smartphone apps (Jati, 2017), *Quipper School* (Agustina & Cahyono, 2017), *WebQuest* (Amalia & Jati, 2018), e-learning (Kwary & Fauzie, 2017; Mu'in & Amelia, 2018) and Learning Management System/LMS (Dwinaya, 2021).

Attempts to research the integration of technology into EFL teaching and learning process in language laboratory using multi facet views from features it has, CALL materials it selects as well as the functions it serves in cooperating both its features and CALL material selection have also rarely been done. Previous studies such as Tanipu (2014), Aulia (2016), Asningtias (2018), Makhtuna (2020), Nurchalis et al. (2021), and Syaifudin, Rozi, and Asri (2015) each portrayed technology-based EFL instruction in language laboratory in either managerial or practical level.

All those studies and the likes provide profound contribution in the field of CALL in Indonesia EFL context yet in them as a whole lies the inability of portraying the comprehensiveness of CALL application in language laboratory as a complex system constituting a variety of things from decision making process at the managerial level to the teaching and learning activities at the day-to-day practical level based on the laboratory' features, CALL material selection as well as function. Therefore, this study attempts to fill the gaping hole by mapping the features, CALL material selection and function of language laboratories in ten (10) higher education institutions in Bandung.

It is hoped that the revelation will lead to an understanding of how CALL is implemented at institutional level and provide comprehensive information for stake holders, language laboratory administrators, English teachers, or technology-based learning material developers to integrate CALL into teaching and learning practices better and more effective.

METHOD

This study does not aim to test a hypothesis. Its purpose was to map the real existing phenomena so that it was expected to contribute to the literature on language laboratories by providing information regarding the current state of language laboratories

in Indonesia. Therefore, the research approach applied was mostly qualitative with a very small portion of the quantitative method. The quantitative method was used to calculate the number of the universities having similar, if not the same, features of their language labs, and matching with the criteria of the existing types of labs.

Ten universities voluntarily participated in this study, three state and seven private universities. The data of this study was collected from observation to the language labs, and interviews. The observation data was collected through a visit to the language labs at the participating universities. This data was recorded in the form of photos of the labs to provide information regarding the lab features as well as the materials. In addition to the photos, WhatsApp chats were also utilized to provide additional information or confirmation to the observation data interpretation.

During the visit, the Persons-in-Charge (PICs) of the labs who possessed the best knowledge of the labs, either the heads of the lab themselves or the technicians, were interviewed to provide information regarding the purpose of the labs, instructional practice, CALL features and materials, and roles of the stakeholders particularly the instructors and students.

RESULTS & DISCUSSION

The collected data was analyzed deductively in accordance to the themes investigated: the purposes of the labs, technological features, and CALL materials. The analysis was aimed to provide information on the trends of language labs currently were on in Indonesia, particularly in Bandung.

The purposes of the language laboratories

The language laboratories involved in this study were built for two different targets: the language and language education study program students and students from various study programs. The former was found in only two participating universities, a private and public universities. The later was known as English as Mata Kuliah Dasar dan Umum (MKDU) which was a supporting course in a university. It was found in the rest of participating universities.

The target users of the language labs determined the purposes of the labs. In the labs for language and language education study programs, the purposes were not only one. They included the practice of language (e.g. speaking) and pedagogical skills (e.g. how to teach English with technology). In the university with internet connection, the purpose of the lab comprised the access for the students to complete their assignments from their lecturers. Each lab for English as MKDU, on the other hand, had only one purpose. It was either aimed at teaching skills or exam preparation such as TOEFL or TOEIC.

Technological features

The technological features found in the language labs involved in this study included the instructor's computer (l ecturer's PC), LAN (the Local Area Network), consoles/controller device, learner's booths, learner's PCs), loud speakers, projectors/camera projectors, projector screens, projector cameras, headsets, microphones, internet connectors, TVs and tape players. Some of these features can be seen in the figure below.

Picture 1. *Features found in the language labs in the participating universities*

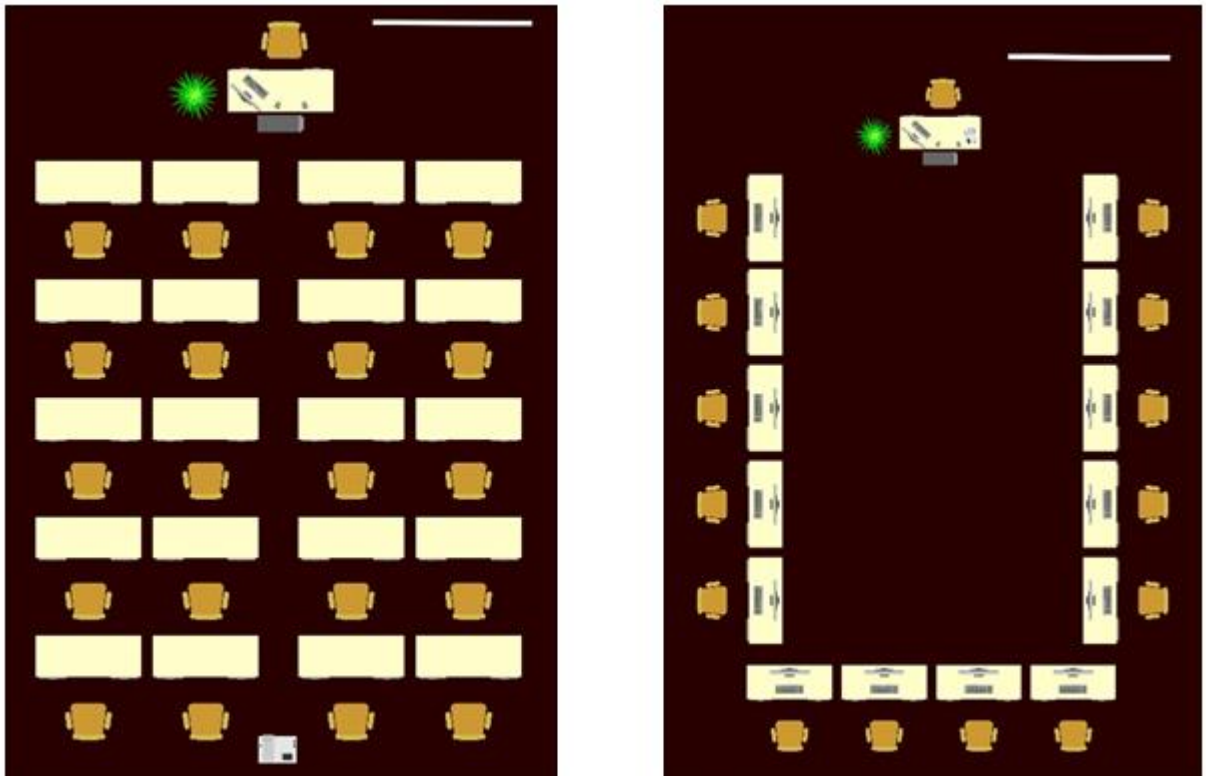
The availability of the features unsurprisingly was quite diverse in the ten universities. However, based on their common and distinguished features, they could be grouped into these categories:

Group 1. Labs with a teacher's computer, learner's booths and computers, and a Local Access Network (LAN).

Group 2. Labs with a teacher's computer, learner's booths and computers, without a LAN.

Group 3. Labs with a teacher's computer and learning booths, without learning computers nor a LAN.

The arrangement of the lab space for each group has similarities, namely the location of the teaching computer and the screen in front of the class. Apart from that, the location of the learner's booth is arranged in a variety, there is a U-shaped shape, some facing the front of the class, some face to face. The location of the projector also varies, some are placed on the ceiling of the class, some are on the instructor's desk, and some are placed at the back of the class. For a projector that uses a camera, it is usually placed on the teacher's desk. Illustration of lab layout (layout) lab can be seen in the picture below followed by a detailed finding for each group.



Picture 1. *The lab with the students' booths facing the teacher's desk (left); the lab with a U shape (right)*

Group 1

The common features found in this group were a teacher's computer, individual or side-by-side learner's booths, learner's computers, loud speakers, projectors (either a camera projector or non-camera), projector screens, headsets and microphones, and a TV. The existence of the LAN connected the teacher's computer to those of the learners'. It enabled a local virtual learning environment between the teacher and the learners in the lab. Within this environment, the teacher could present and/or share their materials with the learners and interacted with them.

The online environment itself was created by a software purchased from a software company. It could come with a console as a controller. This software was considered high priced and the features to support it were costly as well, thus unsurprisingly the universities belonged to this group were big universities possessing financial budget for this purchase or having networks with other countries who granted them the budget.

Of the ten universities, six universities belonged to this group consisting of three state universities and three private universities. Only one of them used the console as their lab management. In addition to this console usage, there are several other minor differences regarding the internet allocation, types of projectors, TV presence, and the preservation of a structural lab.

While LAN provides local connection, the internet connection can provide access to other websites. Five universities restricted this connection only for the lecturers to find their teaching materials. It is because they wanted the learners' learning to be fully under their control. One university, on the other hand, provided the internet connection because they wanted their learners to be more independent in their learning.

The second difference is that five of the university used a camera projector (see number four in figure 3), while one university still used the non-camera type of projector. This is related to the university's budgets, since the camera type is more expensive.

The third difference is that five universities utilized TV to display any visual teaching materials such as movies or other videos that was assigned to the learners to watch. One university had a budgeting reason for not having a TV in their lab.

The last difference is that one university, in addition to the more modern type of lab, still preserved a lab using tape players. This Structural Lab is maintained by the university to facilitate senior lecturers who were more comfortable using it than using other types of labs.

The roles of the teachers in this lab group in addition to as instructors were as teaching material providers and virtual environment managers such as breaking the virtual rooms for group works of pair works. In this group, most of the universities gave the instructors authority to either use the virtual environment or only other technological features such as TV or projector. Only one university obliged the use of the virtual environment.

Group 2

The second group is a group that has a PC for instructors, a booth for learners equipped with computers. This group did not have a Local Access Network (LAN) so they did not require a software for creating virtual learning environment. As a result, the teaching practice in this group was teacher fronted.

The teacher used their computer to play audio files or display their teaching materials through the projector. This practice consequently made the learners very rarely used their computers. Of the ten universities in this study, there was only one university that entered the second group. This university was a private university that used its lab to train their learners to listen to the practice of TOEFL PBT (paper-based) questions. They claimed that previously their lab was equipped with a LAN as they delivered the language course through a courseware. The LAN was diminished as the learning outcomes shifted from language skills development to exam preparation. The management believed that the current features were sufficient for an exam preparation course.

The roles of the teachers in this group were as instructors and classroom managers. They usually taught testing strategies based on commercial TOEFL books. After explaining the strategies, the teachers assigned the students to practice answering TOEFL-like questions which were discussed and explained afterwards. As all the teaching materials had been provided by the TOEFL strategies book(s), the teachers did not have to provide their own teaching materials.

Group 3

The third group was the university group that had a teacher's PC and learners' booths or seats, but it was not equipped with a LAN nor computers for the learners. There were three universities included into this group. These three universities were private universities, two had learners' booths and one had learners' chairs only. This minor difference did not have a major impact on the grouping because these universities had the same teaching pattern, which was apparently similar to that of the second group. These technological features were used to practice for the PBT (paper-based) TOEFL questions, language skills, and/or pedagogical skills practice for language education program students.

Unlike those of in group 2, the roles of the instructors in group 3 were more varied. They played roles as instructors, classroom managers, and if they were willing, they could provide teaching materials as well. However, this group as well as the second one was found to use less

varieties of CALL materials than the first group as discussed in the section of CALL Materials.

CALL materials

As discussed earlier, the technological features in the first group made the CALL materials used more diverse. This may be caused by the demands of features themselves. The existence of the virtual learning environment made the instructors feel obliged to enrich the teaching materials so that the class would not be monotonous and the time was spent well for learning. Based on the interview data, there were several CALL materials found in these Language labs, they included the learning environment software, media players, media recorders, websites, and courseware.

The virtual learning environment in this research was software that could come with or without a console. The console had a broadcasting system related to the control of the learning process including communication between instructors and learners under the instructors' monitors. In addition to communication, the console also allowed instructors to send content teaching materials to certain learners or the entire class and/or limit what could be accessible to the learners. If the software was not supported by a console, these functions would be executed in the computer as the monitor would display these functions. Considering the functions, this software could be considered as *process material*, albeit the term console is used to describe a technological feature.

This software was relatively expensive. Thus, it is not surprising that it was considered *luxurious* purchased by the universities themselves by issuing substantial funds to the managements and/or proposing grants to the Ministry of Higher Education (Dikti). Additionally, two state universities were granted the technological features as well as the software from other developing countries such as Japan or Saudi Arabia.

The second CALL material was the media player which was usually featured by the OS (operating system) on the computer. It was commonly used to play audio files such as MP3 or video for teaching listening skills. As spoken language (listening and speaking) had become the focus of lab learning targets since its appearance, starting from the use of phonograph, cassette, to media players as seen today, thus unsurprisingly all universities from the three groups formed in this study used this type of CALL material.

In addition to listening skills, developing speaking skills (especially pronunciation) had also been a learning goal in the language lab. It could be seen from the drilling method that was applied during the Structural Lab both during the war to post-war. The use of audio cassettes during the Structural Lab could also be used to record the learner's voice in the golden end of the lab. Today, the audio cassette had been replaced by a computer using an application that could do the same things such as recording, playing, and even modifying the learner's spoken language production. There were many types of voice recorder applications, but the one found in this study was Adobe Audition (see Picture 3).

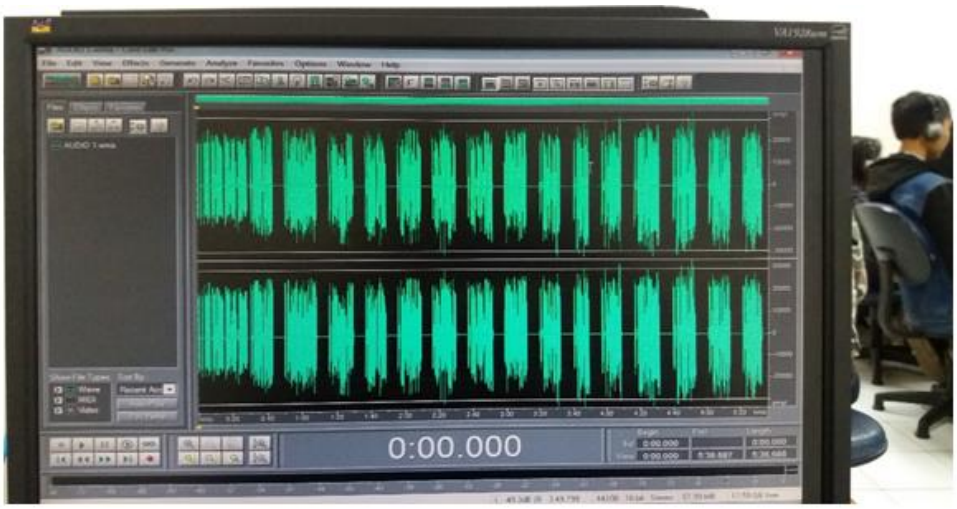


Figure 2. *The use of Adobe Audition for speaking practice*

Of the ten Universities or the three lab groups in this study, only six universities in the first group used this application. This finding indicated that the other two lab groups did not focus on teaching speaking skills in their labs. It is interesting because one of the universities in group three stated that they had learning outcome of developing their learners' communication skills. In this study, we assumed that this university used other techniques instead of using computer applications for speaking skills practice.

The next material was text viewer applications or software such as Microsoft Word and Adobe Reader. These applications displayed text for the purpose of reading and giving instructions of the tasks which the learners must work one. This type of CALL material was found in all universities in this study. However, group 1 could share the texts to individual learners through their computers so that they could work according to their pace. Whereas group 2 and 3 would display them in front of the class through the projector so that all learners could read them. Figure 4 below displays an example of use of the text viewer application.

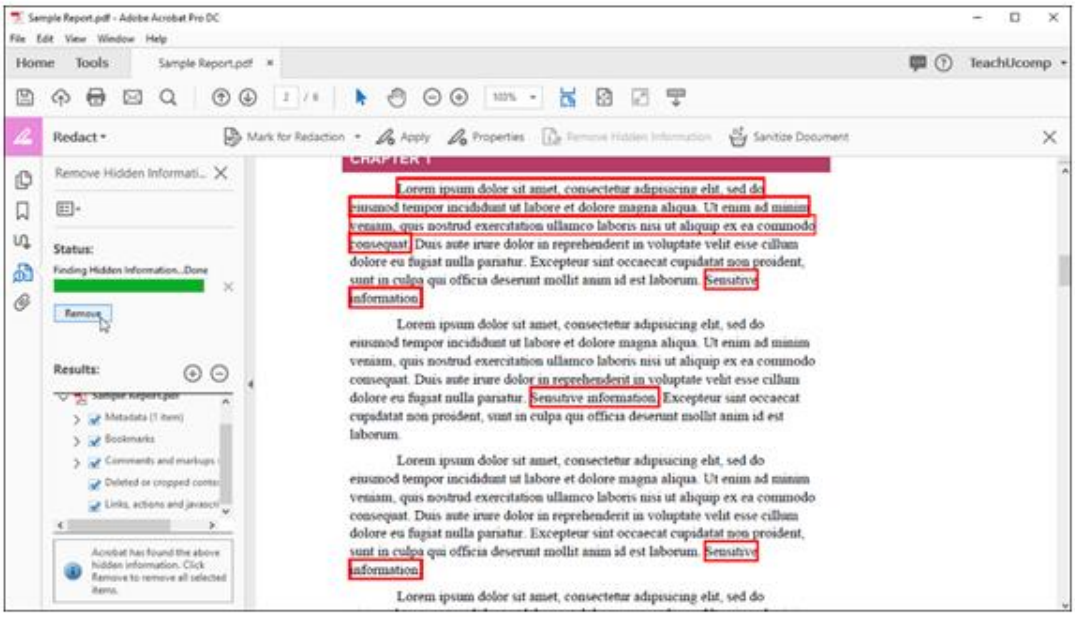


Figure 3. *Text software used for displaying a reading text to perform a class activity task*

Another CALL material containing instructional content found in this study was web-based content materials. Even though we did not get much information about different kinds of websites used by teachers in the language labs, we managed to gather information on some examples of links that were used to become material content in the labs of group 1. The websites used were commonly those that were purposefully designed for language learning such as BBC.

When using the web-based CALL materials, group 1 labs would send the link to the students and open the internet access them. By using the control feature provided by the software, the instructors could restrict the student's internet access so that they would only be able to access the assigned page. Some universities in group 1 who did not want to give any internet access to the learners would download the downloadable materials or copy them and then share them through their virtual learning environment. The group 2 and 3 labs, on the other hand, were not found to incorporate these materials.

In addition to the text viewer application and website, the CALL content materials found in one of the universities was courseware. This courseware could be in the form of a software or special websites that had been designed for language learning and thus had provided ready use English language learning materials. By the time of this study conducted, this courseware was starting to be offered by many IT companies. And the most offered courseware was the web-based versions so the students could access them everywhere. But in

this study, the courseware found was software-based Rosetta Stone (which apparently also offered the web-based version). This software was used to increase vocabulary and develop the learners' communication skills. Of the ten universities, only one university used it. This university had a learning outcome that was to improve its learners' English communication which was measured by the TOEIC test.

Types of the language laboratories

By looking at the features mentioned above, group 1 labs to many degrees meet the characteristics of Integrative Lab (Warschauer & Healey, 1998; Bera, 2017), certainly excluding the tape player-based lab which belonged to the Structural Lab. Integrative lab is used to teach integrated skills (reading, writing, speaking, and listening) and incorporating integrating teaching materials.

Most universities in this this group were found to use their language labs to teach language skills. However, one university who also possessed a Structural lab used their lab more diversely. As the labs in this university were specially purposed for language and language education study programs such as English, Japanese, Arabic, and French, it also used their labs for their program courses such as language pedagogy or translation. Thus, the internet in this university is accessible to their students, unlike the other universities in this group.

Group 2, on the other hand, was an example of a shifted type lab from an Integrative Lab to whatever it may become. If in the future they would incorporate more technological features such as tablets or mobile devices and give internet access for language learning and teaching purposes, they might become a Technological Enhanced Language Learning (TELL)-based lab (Buscaglia, 2013). Similarly, even though they had never been Integrative Labs, the labs in Group 3 could possibly become TELL-based Labs if they would involve more technological features in the future.

These findings suggest that the labs in Bandung, Indonesia were relatively varied in terms of purposes, features, and teaching materials. The language labs in the ten universities mainly could be categorized as the Integrative Labs, but almost half of them did not match any characteristics of the lab types discussed in the literature. This finding indicates that some universities might have lost their focus on developing their language labs so that they did not provide much support for them to utilize more technological features as well as provide internet connection for their students.

Another finding of this study was that the purpose(s) of the labs could determine the features of the labs, and these features determine the types of CALL materials used in the language instructions. However, it was not always the case. It could be the features of the labs determined the purposes of the labs, depending on the university management.

CONCLUSION

Based on the explanation in above and the summary we made in Table 1, it can be concluded that the most common features of the language lab are teaching computers, projectors, screens, student booths and loud speakers. This shows that not all Language labs in Bandung have features as explained by Bera (2017). However, 60% of the labs that are the object of our research can be categorized as Integrative Labs with minimal features as illustrated by Bera (2017). The other four universities did not match any types of labs.

In addition to features, CALL materials that are found are also diverse. The most commonly used materials are the media player and text viewer. While other materials such as learning environments, media recorders, websites, and courseware are only found in groups of universities that use LAN. Although we conclude this, the implementation of material selection will depend on the lecturer.

One of the findings of this study is that the availability of features determines learning outcomes that impact on the diversity of CALL materials used. When using LAN and console/learning environment as main material processes, learning outcome focuses on improving language skills or tests that measure language skills, and some even have a variety of goals. Whereas when LANs are not used, content materials are limited to audio and text files so that learning outcome is limited to TOEFL listening practice or reading teaching materials for pedagogy learning. There is one university that has a group of three features but has learning outcome language learning skills. It is undeniable, without learning environment the practice of language skills can still be done but is limited.

Table 1. *The summary of the common features, CALL materials, and purposes in the participating language labs*

		1	2	3	4	5	6	7	8	9	10	Total (%)
Features	Lecturer's PC	√	√	√	√	√	√	√	√	√	√	100
	LAN	√	√	√	√	√	√					60
	Console		√									10
	Student's booths	√	√	√	√	√	√	√	√	√		90
	Students' PCs	√	√	√	√	√	√	√				60
	Loud speaker	√	√	√	√	√	√	√	√	√	√	100
	Screen	√	√	√	√	√	√	√	√	√	√	100
	Projector						√	√	√	√	√	50
	Camera projector	√	√	√	√	√						50
	Headsets	√	√	√	√	√	√					60
	Microphone	√	√	√	√	√	√					60
	Internet	√										30
	TV	√	√	√	√	√						50
	Tape player	√										10
CALL material	Learning environment	√		√	√	√	√					50
	Media player	√	√	√	√	√	√	√	√	√	√	100
	Media recorder	√	√	√	√	√	√					60
	Text file displayer	√	√	√	√	√	√	√	√	√	√	100
	Website	√	√	√	√	√						50
	Courseware						√					10
Purpose		V	S	S	S	S	E	E	E	S	P	V S E P 1 5 3 1

Based on the findings, it is critical for universities in Indonesia to possess rounded understanding of types of language labs therefore they can properly set language lab management as well as equip their language lab with technological tools and CALL materials in accordance to the goals of learning English as foreign language. It is also important for the government to issue regulation regarding university language laboratory management to meet the fast pace technology advancement related to teaching and learning English in Indonesia. Therefore, graduates of Indonesian universities can be equipped with English language skills that meet the needs of industries.

For future research, we suggest to replicate the investigation to other contexts in Indonesia, as this investigation is limited to only one city. More and more research on this topic is hoped to provide adequate data on the real picture of the running of language laboratories in universities in Indonesia. Therefore, universities have sufficient information on proper language laboratory management including appropriate equipment and CALL materials.

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