Digital language Lab: Creating Opportunities and Assisting Researcher To Collect Data Via Integrated Pedagogical Teaching and Learning Equipment System

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This paper aims at sharing real experience and usage of integrated pedagogical teaching and learning equipment system that offer opportunities for qualitative research and ways of collecting data. Issues of having insufficient materials and poor technology in learning using computer in relation to pedagogical implementation have been realized with the existence of a state-of-the-art language lab. Learners are introduced and exposed to such technology and various language learning software available in the lab, thus provide opportunities for researcher to explore the horizon. Researchers are given the platform to experience the equipment that can assist them in collecting data. With the usage of integrated pedagogical teaching and learning equipment, learners are exposed to an environment that is new and different from a regular teacher fronted approach. Friendly interface, easily handled and fantastic learning environment indicate how valuable this system is in managing and recording the learners’ activity as well as performance in the lab. This can work as a significant tool in collecting data.

1. Introduction

In the midst of investigating and discussing the issues of creating opportunities and helping researchers to collect data, Digital Language Lab (Dglab) has set up not only an infrastructure with a local area network and tools but also language learning software to complement an alternative learning environment for learners. According to Jacobson & Levin (1993), “a new class of tools is needed to preserve easy utilization of network resources and helps manage and filter unnecessary complexity that interferes with network-based learning activities”. Reacting to that, currently, with the existing of a state-of-the-art facilities and system in relation to language learning, learners seem to take interest in visiting and requesting to use the lab as their learning classroom as well as self-access learning. Software available in the lab seem sufficient to relate and complement the learners needs in assisting them with the language course they are enrolling as well as the teachers needs in monitoring the students of their performance and activities in both classroom teaching or self-access.

2. Creating Opportunities for Researchers to Explore Issues of Language Learning and Teaching the Alternative Way

The lack of learning software and equipment that integrates with the language lab system server via local area network (LAN) are the issues that deprives language learners and educators from experiencing a modern or rather an alternative way of teaching and learning languages. The deprivation of the privilege to experience alternative method of teaching and learning has perhaps affected researchers’ opportunities to venture into exploring better or easier ways to collect data through technological means.
2.1 Suitable Language Learning Software

Since the technology on learning is rapidly developing, learners and teachers deserve to experience an approach that involves relevant software to serve their curriculum education needs. However, the issue lies with the contents of the software that does not really cater for both teachers and learners to fit into the curriculum. The software does not have the capability to provide platform or option for the teacher to create their own exercise that is related to their learners’ needs and curriculum. This discourages the teachers to optimize their knowledge in integrating it with computer-mediated software. The constraint seems serious enough to cause learners and teachers not to have the exposure of an alternative learning method to complement the curriculum. Thus, a complete pedagogical implementation of teaching and learning is affected and the teachers are not able to fulfill their learners’ needs as well as their own.

One way of overcoming the issue of lacking suitable language learning software is to look at the needs of the learners’ syllabus and curriculum in that community. For that reason, the teacher has to study and plan items to purchase according to learners’ needs. In Dglab, there are a number of software that basically covers all skills needed in language learning: Reading, Writing, Listening and Speaking. It is important to have learning software that can generate exercise according to the syllabus learnt by students in a language classroom. This is where teachers can transfer their knowledge and idea to the software and generate exercise as they deem fit to the students’ level. As a result, another end product created by teachers specifically designed for their students.

The figures below show specifically among others some samples of the software that can be used in generating exercises for the learners:

Figure 1 : Sample of Exercise Generating Software Interface
2.2 System Equipment That Can Serve Both Classroom Teaching And Self-Access

Good and reliable system equipment is significantly important in order to have Computer Aided Language Learning (CALL) and Technology Enhanced Language Learning (TELL) environment. The system should be able to have dual function: learning in a classroom with teacher monitoring and self-access learning. The issue in this case is that the existence of this type of system can hardly be obtained without spending certain huge amount of money. A special budget must be allocated for this purpose. Without this being secured, only limited learners who are fortunate enough to experience this CALL and TELL environment. With these facilities in hand, more opportunities are open for a research in the implementation of CALL in a classroom.

The issue of not having a space for storing learning materials that come in a different form is another problem for teachers and learners. The teachers could not put materials for learners to get easy access to the network. Apart from storing materials, a space is also needed to register users of the lab. Another issue arises here if users are not registered, the monitoring systems fails to work for the administrator of the lab. For that reason, users are not able to be tracked of their activities and performance in the lab. This hinders the potential of producing a reliable research data of the users and their activities.

3.0 Assisting Researchers with Opportunities of Available Tools for Data Collection

The Digital Language Lab system (Dglab) may not only create opportunities for research but may also assist the researcher to collect data. This is possible with the infrastructure and facilities available in Dglab. The Dglab includes equipment systems that come in one package that is a teacher and students friendly, fully integrated with interactive multimedia language learning system that provides platforms for interactive practical teaching and training environment with languages on a real time face-to-face situation. This system consists of the following equipment/software: 36 students' PCs/workstations, 1 teacher’s PCs/workstation, audio visual equipment, information and communication management (ICM) software, digital interactive audio visual software, media and communication server as well as editing station. The total package shall enable the department to carry out all modes of learning and teaching methods. Be it local, within the campus and/or in the near future virtual learning (remote teacher or remote students) within the same class when required. The system is integrated with self access learning
management software which has the ability to assist researchers in collecting data for specific purpose of their research.

3.1 Information and Communication Manager and Divace Duo (Lab 300)

In using Dglab for classroom teaching, we use particular software called Information Communication and Manager (ICM). It is a set of classroom management applications. It is a software package that supports a concept of a teacher-dominant learning center as well as a student-centered learning environment. This application is fully integrated with the students’ computer workstations in the lab. It is a powerful set of classroom management applications that facilitate teaching and learning activities from launching a particular learning resource (whether in analog or digital format) for student study, to verbal and visual monitoring, guiding, correcting and coaching of individual learners.

Students’ verbal communication can be recorded with or without them realizing it. The element of surprise comes when students are able to listen back their unexpected conversation, messages send to their monitor or even put one student’s monitor to be seen at every monitor screen in the class with the capability of Computer Supervisory System (CSS). Students are also able to participate in a forum via LAN as well as chat programme activated by ICM (figure 3) and Divace (figure 5). In other words, text based form of discussion can be implemented through this integrated pedagogical equipment. This can complement netmeeting (figure 7) software for video conferencing or even text-based discussion in the Dglab via LAN. In transcribing and analyzing the discussion, Transana (figure 8) software can be used in the Dglab as well. Apart from that, with Divace software the students can interact verbally with one another by dialing/clicking specific number where their friends are sitting and as a matter of choice, the teacher can set the groups or pairs as he desires. In other words, the students do not have to move about to talk to their friends. By showing and using all these applications, students cannot help but to be curious to see what technology in the lab can do in assisting their learning. Obviously, this cannot be found in a usual teacher-fronted and face to face classroom teaching and these features can assist researchers to collect and secure the data.

The figures below show specifically some samples of the application that can be used in ICM for classroom teaching and monitoring:

**Figure 3 : ICM User Interface A**

- Grouping Students
- Group Conference
- Talking to the whole class
- Pair Discussion
- Students’ Position
- Send and copy a file to Pcs
- Program Transfer
- Phone Conversation
Figure 4: ICM User Interface B

- Chat
- Model Student
- Show Teacher’s Screen
- Monitoring Student Work
- Sending Web Site
- Lock Pcs
- Intercom

Figure 5: Divace Duo Interface

- Indicating that students are grouped together by pc number
- To save recording in mp3 format or other audio files
- To call teacher
- To record discussion
- To listen to the recorded discussion
**Figure 6: Divace Chat On Students’ Screen**

**Figure 7: Netmeeting On A Student’s Screen**
3.2 Media and Communication Server in a Local Area Network (LAN) Infrastructure

In order to have a reliable and workable language lab, proper space in a suitable infrastructure is needed to manage the media information, user profile and security. In this lab, there are 2 dedicated servers: Dglabam (Media Server) and Dglabac (Communication Server). The former plays a very significant role in storing language learning software as well as learning materials and the later administering the users’ profile and security of the system in the lab. Dglabac has 3 partitions: (C:\) 8.0 GB for the operating System of Windows 2000 Server, (E:\) 8.0 GB for the Application and (F:\) 8.0 GB free space. On the other hand, Dglabam hardisk has 2 partitions: (C:\) 8.0 GB and (E:\) 28.0 GB. These partitions are necessary to manage the system in the lab. (C:\) drive is specified for the operating system of Windows 2000 Server whereas (E:\) is for media. The size of media partition is considered sufficient for storing the teaching and learning materials and software. By having these servers, teachers will just have to store their learning materials in the dglabam and with the help of dglabac, students can either access the materials from the server or the teacher can launch the materials at one time to all students’ computers over LAN. All devices are connected to a central hub via coaxial cables, or fiber optic cables. Computers communicate across the network by passing data through the hub. This is how students are able to communicate with and send messages to one another. Thus, the advantages of collecting the data in Dglab include nearly unlimited access of storage of data gathered through respondents’ verbal or text-based discussion.

3.3 Monitoring and Recording Activities of Language Learning In The Lab (Study 100)

It is necessary for learners to have a venue to learn without being monitored directly from the teacher. In this case, Study 100 system (figure 9 and 10) is very important because it provides the facilities and space as well as encourages learners to study on their own according to their pace. This system is known
as the off-the-shelf language digital courseware, encyclopedia and other references for self study. It provides the choice to work with digital format or analog format. All access are tracked and monitored with Media, User and Workstation Database which is fully integrated with the Language Lab System. Learners are given their own password and username to access the materials for self-access. The idea of giving them the username and password is for the creation of individual profiles. By having the profile, learners access can be tracked and monitored for research or evaluation purposes.

The figures below show specifically the interface of the learners’ database according to the course for profile monitoring and tracking:

**Figure 9: Registered Users According to Course**

![Registered Users According to Course](image1)

**Figure 10: Report On User Tracking**

![Report On User Tracking](image2)
4. Conclusion

In creating opportunities and assisting researchers to collect data via integrated pedagogical teaching and learning equipment system, Digital Language Lab has the necessary infrastructure that relies on the local area network with the integration of the following hardware and software:

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<tr>
<th>Hardware / Software Type</th>
<th>Opportunity and Assistance</th>
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<tr>
<td>Media Server</td>
<td>Allow sufficient space for storing digitized research data and materials that include networked folders shared for learners/researchers to get access.</td>
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<tr>
<td>Language Learning Exercise Generator</td>
<td>Assist researcher in creating learning materials for respondents according to their needs and purposes</td>
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<tr>
<td>Information and Communication Manager (ICM)</td>
<td>Offer alternative pedagogical methods via networked computer programme activation to complement face-to-face or teacher-fronted approach.</td>
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<tr>
<td>Computer Supervisory System (CSS)</td>
<td>Control and monitor events in the networked classroom.</td>
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<tr>
<td>Divace Duo</td>
<td>Empower learners to take charge and share of verbal collaborative activities in terms of recording and retrieving as well as interacting with the fellow learners or the teacher during activities.</td>
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<tr>
<td>Netmeeting</td>
<td>Allow collaborative activities via computer which include sharing and exchanging text-based/drawing, verbal inputs that can provide alternative way to traditional face-to-face approach.</td>
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<tr>
<td>Library Pilot (Study 100)</td>
<td>Manage, record and track activities of learners using the computers or software in the classroom as well as provide an easy access to off-the-shelf digital library of learning materials.</td>
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<tr>
<td>Transana</td>
<td>Facilitate the transcription and analysis of Mp3/video data of the recording as well as identifying and organizing analytically interesting portions of the recording. It also features database and file manipulation tools that facilitate the organization and storage of large collections of digitized data.</td>
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References


