

THE AFFORDANCES AND TROUBLESHOOTING OF AN IT ENABLED EFL CLASSROOM: FOUR PRACTICAL EXAMPLES

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Abstract

This paper aims to provide teachers with a practical guide to working in an IT enabled classroom. The paper outlines four central practical examples, with teacher reflections, of what was required in starting an actual IT enabled English listening & speaking program. The classroom environment described is board-less, meaning the teacher's presented with PowerPoint. The environment is largely paperless, meaning a Bring Your Own Device (BYOD) approach was implemented for both students and teachers. The paperless philosophy also meant material creation was digital, and delivery/submission was via Google Classroom. The teachers' largely thrived in the environment, and many unexpected affordances were discovered, however, technical and pedagogical issues were also identified and the paper troubleshoots ways in which IT enabled EFL classrooms could be enhanced.

Keywords: BYOD; Google Classroom; paperless; EFL listening; EFL speaking

1. Introduction

This practical reflective article, grounded in real classroom experience, offers insights into the affordances, and troubleshoots the problems, associated with teaching in, and managing, an IT enabled classroom. The paper draws on the experiences of five teachers implementing an English listening and speaking task-based learning program at INIAD, a new innovative technology centric faculty and campus of Toyo University in Tokyo. The paper highlights four core practical IT aspects of the classroom that the teachers faced and how their assumptions and expectations matched the actual reality. Overall, the paper recognises the doubts and fears that teachers face when embarking on a new way of teaching, but largely showcases positive examples of how technology can aid teachers and students in the EFL classroom.

1.1. INIAD

The teaching took place at the Department of Networking for Innovation and Design (INIAD), Toyo University. INIAD is a newly established department at a mid-level private university in

Tokyo, Japan. It started enrolling students from the 2017 academic year aiming to attract students who can start innovations compatible with the network era after their graduation. Its main concept is “networking” between people from different nationalities, cultural backgrounds, and fields of expertise. Therefore, in order to develop practical communication skills needed to solve shared issues, all students are required to study foreign language (Japanese/English) communication in their first year, before being divided into separate courses to acquire specialist knowledge from the second year onwards.

The first year English curricula are comprised of two courses: Listening and Speaking (LS) and Reading and Writing (RW). All lessons are 90 minutes in length. There are 30 LS lessons per semester (two lessons per week), and 15 RW lessons (one per week). Both courses are mandatory subjects, meaning that all first year students (except for the international students who take Japanese lessons) are enrolled in this program. Classes are organized into four levels according to the results of a placement test taken before the start of each term, with three class groups at each level.

The rooms at INIAD are very simple and clean. The typical English classroom has eight round tables, six electricity sockets and one extension cord. The lighting, in the classrooms, is excellent with three dimmer settings; bright, medium and dark. No PCs are provided. Students and teachers bring their own devices into the room. Furthermore, the Listening and Speaking classes do not have a book, instead they rely on teacher and student generated digital materials. In principle, this is a paperless classroom and paper was in fact very rarely used.

1.2. Teachers

There have been five teachers involved in designing the Listening and Speaking (LS) program since 2016, and they have taught in the program since 2017. The teachers included 2 female and 3 male, 2 Japanese and 3 native speakers. The teachers were all aged in their 30s and 40s. In terms of IT skill they self-reported as being, average (2), above average (1) and excellent (2), for English teachers.

2. How we reached IT enabled classrooms

Warschauer (2004) outlined three stages of CALL from the 1970s to early 2000s. The 1970s into the 1980s can be termed the structural stage that made use of mainframe computers. The late 1980s and 1990s were defined as the Communicative CALL stage that made use of PCs. The early twenty-first century was termed the Integrative CALL stage that made use of multimedia and the Internet. A very important aspect of this progression was that the

technology was becoming smaller and wireless. As time has moved into the 2010s, it became possible for even a small child to carry a computing device to school, be that a tablet, smartphone or even an ultralight laptop. This lightweight capability meant the trend was moving towards bring your own device (Hockly, 2012). As it became normal for tech to be mobile, it meant the tech was ever-present. INIAD's IT enabled classrooms are based on the philosophy of bring your own device (BYOD) fused with superior Wi-Fi and online learner management systems. Could Bax's (2003) idea of normalized CALL be on the verge of fruition?

3. Examples from an IT enabled classroom

Four key practical examples were identified that represented real differences between a typical Japanese university EFL classroom and INIAD's IT enabled EFL classrooms.

3.1. Teacher personal computers and projectors

Aim: Replacing blackboards

Resources: 1 HDMI cord, 1 PC and 1 projector with speakers.

IT skill level: Average

How to set it up

Each classroom is provided with a ceiling mounted projector, with audio speakers, that screens onto a bare white wall (see Figure 1). There is one HDMI projector socket in the wall next to the teacher's desk. Teachers are provided with HDMI cables with which to connect their devices. The blackboard is largely replaced by PowerPoint projected presentation. PowerPoints require large font sizes (28+) to be readable and must be designed in advance.

Step-by-step procedure

- Prepare PowerPoint materials (minimum font size 28)
- Carry PC into the room 10 minutes before class
- Plug PC into HDMI projector
- Start PowerPoint



Figure 1. INIAD classroom

Teacher impression

All of the teachers were concerned prior to teaching in the environment as to how this would work. One teacher stated, “When I first heard that we won't have white/blackboards in class, I couldn't imagine how it would be managed. I have never seen such a classroom, language or otherwise.” Other teachers were concerned with specific issues, such as the PCs slowing down the class flow, students focused on their PCs rather than the class, and the general loss of spontaneity.

Affordance

All the teachers agreed that they had adjusted to the new reality and could see the benefits of PowerPoint slides, PCs and projectors; some even felt that they had seen a new way of teaching. The new approach was visually far more colourful and stimulating with the potential to easily access and use the Internet and audio visual content.

The students were considered to be far more focused on the tasks than had been anticipated, the technical issues had been minimal and the quality of PowerPoint presentation as opposed to a blackboard was seen as a strong positive. In fact, one teacher noted that the power of the projector was useful in getting the students heads and minds out of their PCs, as a blackboard would not have the gravitational pull to do it.

Troubleshooting

Having said that, there was some lingering feeling that by not having a blackboard some communicative opportunities had been lost. The teacher concerns centred around spontaneous interaction with the students and jotting ideas onto what would have been previously a blackboard. The teachers felt that while it was possible to write notes on blank PowerPoint slides, in reality, it was rarely now a part of their teaching style. These teachers felt that by only using IT tools, or the IT tools available, they had lost some flexibility in dealing with different learner types. As one of the respondents suggests, “PowerPoint presentations allow for smoother and more professionally presented classes. However, English classes rarely move in a clean straight line, there are usually unanticipated problems that must be resolved. It is easier to deal with the untidy edges on a blackboard as it is quicker and also easier to sketch and draw.”

There are several ways in which this could be overcome. The teachers could still use low tech solutions such as a blackboard or whiteboard for these random situations. Hi-tech interactive electronic whiteboards could be used or, possibly teaching styles will evolve and there could be less spontaneous interactions in the future classroom. This might be a trade-off some teachers will be prepared to make given the higher reported student engagement.

3.2. Bring your own device

Aim: Replacing books and paper

Resources: 1 PC per student and high-speed Wi-Fi

IT skill level: Average

How to set it up

The classroom required both students and teachers to have their own personal computers in every class. All work was completed on a PC. The students made use of digital materials created by the teachers themselves and third party online resources. In addition, sometimes smartphones were used. In some senses INIAD has an advantage over other EFL classroom

university settings, as INIAD requires PCs for all classes. It was expected that students would have a fully charged PC and there was no excuse for not having one. This would need to be taken into consideration if implementing BYOD in isolation from the rest of a school.

Step-by-step procedure

Teachers

- Charge PC overnight
- Bring PC to school
- Use PC in class: PowerPoint presentation, slack messaging (teachers and administration staff), class roster – Excel file, e-mail correspondence with students, PDF files, Chrome browser (Google Classroom, YouTube, Google docs/sheets, shared cloud material, other software)

Students

- Charge PC overnight
- Bring PC to school
- Use PC in class: Chrome browser (Google Classroom, YouTube, Google docs/sheets, shared cloud material), PDF files, e-mail correspondence, other software as needed

Teacher impression

Prior to starting the program, the teachers had a wide range of views on PC and smartphone usage; some had no strong predetermined views, others had expected off-task distractive behaviour, such as game playing and texting, while one teacher stated, “I don't see what the fuss is about. It seems totally natural to me.”

Affordance

In terms of teacher usage, there were many positives identified, and they can be summarised as higher quality materials and better record keeping, for example, the ability to show high quality colour pictures, audio and video. This was extended by the capability to share digital materials immediately and to continually update the shared materials in real time. If there was a correction, or need for change, then the teacher could easily adjust the materials and resend. Sharing could also include switching to online information sources as was prudent or necessary.

The teachers were also able to track student activity via Google Classroom and the use of shared Google docs. Probably one of the biggest positives was the improvement in record keeping. The ability to collate grade data on Google Classroom and download into an Excel file was a huge time saver and likely more accurate. The final positive was that digital materials mean a paperless classroom. No paper equals less things to carry, less photocopying and less things to lose.

The positives of student usage were also manifold. Firstly, there was more engagement as the students seemed to like using computers and enjoyed the varied tasks afforded by audio, visual and Internet resources as compared to a book paper and pen. The students were also able to create various types of documents, presentations and other media in class. Secondly, since everything was digital, it was much easier to read students' writing and students could read the teacher feedback, as one teacher said, "No struggling with bad handwriting, both student and mine." Finally, it was much easier for students to communicate via e-mail and Google Classroom with the teacher, be that to drop a note saying they would be absent or to securely submit an essay.

When asked if they had any final thoughts on the positives of PC usage, one teacher reflected that "student own notebook computers are superior to CALL labs. This is for two reasons; students own computers tend to work and they know how to use them, as opposed to CALL labs that often have technical problems, or are simply too old. Secondly, notebooks are sat low on the desk and do not cover the students. It still feels very open plan. In comparison, CALL labs tend to enclose individual students in private spaces that make classroom face-to-face communication difficult and detection of non-class activity also difficult."

Troubleshooting

While the teachers were excited about the positives, they also identified three negatives that should be noted. First, was the sense of risk. If everything is on a PC and connected via the Internet, then a failure of that PC, or the Internet, is disastrous. As one teacher put it, "I can't think of any cons, except for the risk that I'm dammed if it goes down." Technical issues are not something a teacher should be expected to deal with and are largely outside of teacher control. INIAD features a media support centre which has offered fast technical support on the few occasions that things have gone wrong. This has included fixing one student's "Dead" computer and instantly replacing broken HDMI cords.

A second negative was the sense that teachers can easily be too focused on the PC screen rather than the class. As one teacher stated, “Some focusing on a screen in a limited location (on the desk) could reduce visibility range of the teacher, in turn reducing his/her awareness of students” while a second teacher said, “There's a tendency to sit behind the computer and sort of wall off from the class, but I try to fight it.” This can be easily solved by standing up, as the laptops are at about stomach height, and then, moving around the room, following good communicative teaching practice.

Finally, there was the practical negative that it takes more time to set up the classroom and organize activities. This was solved by the teachers tending to arrive in class 10 minutes before the start of lessons in order to connect the computer and projector. PC based classes require attention to detail. In fact, most classes require a projector, student roster Excel file, PowerPoint class presentation, online Google Classroom, and potentially several digital handouts and possibly audio/video media as well. Clearly, the teacher needs to know where these materials are and how to access them quickly. This is usually done by having multiple desktop windows prepared and open (see Figure 2); one for the roster, one for the PowerPoint, one for Google Classroom in a browser and one for audio/video. This is not difficult, but does require organisational skill and preparation time.

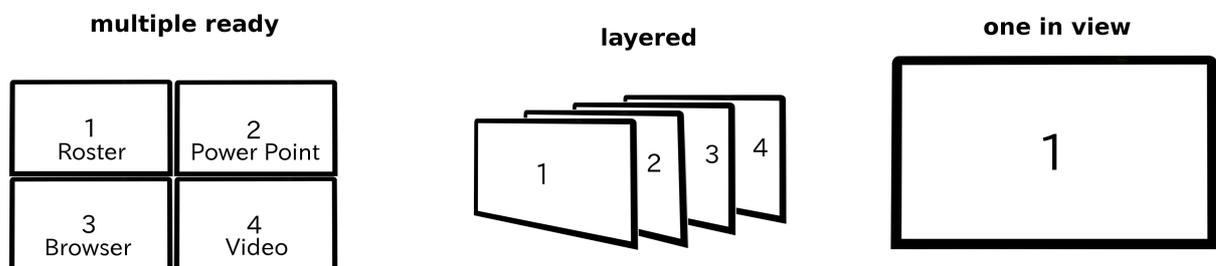


Figure 2. Multiple desktop windows

The student negatives can be summarised as non-class distractions, hardware inequality and decreased social awareness. The teachers had expected distractions and they were not disappointed. Non-class activity such as game playing, Internet surfing, texting and doing homework for other classes was identified. Unfortunately, this is the downside of excellent Internet connectivity. As one teacher commented, “students have an entire Internet's worth of distractions at their fingertips.” Several teachers noted that it can be quite difficult to notice this behaviour, especially as some students, to save their batteries and lower power consumption,

dimmed their screens. The solution was to walk around the class, be attentive and to continually communicate with individuals.

The second issue was the difference in specification of students' computers. The majority of students had bought the same standard PC that was recommended by the school, but some had higher spec and some had cheaper lower specification computers. This sometimes meant that students with lower specification PCs would need more time to undertake tasks than the average. There was no way to completely solve this problem, but being aware of it, a teacher can create tables and groups of students with a variety of computers, that way if one student has an issue they can work with a neighbour.

The third negative issue surrounded the reality of students being absorbed by their PC screens with their heads in their computers. This sometimes meant students, even in pairs, not listening to the teacher. It also meant there was at times less eye contact and communication between students than some teachers might prefer. The solution to bringing student focus back to the classroom is to use the projector, probably with something bright and noisy. Alternatively, suddenly brightening the lighting can also be very effective.

3.3. The handing out, submission and marking of digital work

Aim: Facilitate paperless assessment

Resources: Google Classroom

IT skill level: Average/Above Average

How to set it up

Google Classroom, according to Pappas (2015), is a learning management system targeted at academic institutions that streamlines the sharing of classroom documents and assignments. Pappas lists several advantages of this free system, namely ease of use, communication, effective feedback and the speeding up of the assignment process. The decision to use Google Classroom, and the positive attitude displayed by the team towards it, is supported in the literature (Al-Marouf & Al-Emran, 2018; Iftakhar, 2016; Ventayen, Estira, de Guzman, Cabaluna, & Espinosa, 2018).

Inevitably, Google Classroom leads to heavy use of Google docs, spreadsheets, slides and forms (an online questionnaire and quiz maker). Google docs allows for the teacher to add comments to students' works and for groups of students to interact with and edit a single document in real-time. Google sheets allows for the easy compiling of data. Google Classroom

allows for the various assignments to be returned to students via email notification and the assignment grade points to be collated into a Google sheet. The final grade points and student personal data can be downloaded as a comma separated values (.csv) file, which can be migrated to an ordinary Excel file and grades can then be calculated.

Step-by-step procedure

Google Classroom is a system and as such requires multiple step by step guides for each function. The following section will outline some of its important functions. The system is very intuitive and little experimentation is required to use it effectively. The initial set up and logging in (see Figure 3) are probably the most difficult tasks. To be a Google Classroom teacher you require a Google account, such as a Gmail account. In order to use with students in your school, Google requires you to have permission from your school. All students will also require Google accounts. However, if you are not using with school students, accessing the system simply requires a Gmail account. A demo account has been made, and for a limited time, readers of this article can view Google Classroom from a student's perspective. Please note, no submitted works will be returned or graded. The deadline for submissions has long past. This was designed as a sneak peek for interested teachers.

Logging in

- Visit <https://classroom.google.com>
- Log in with an associated Google account.
- Experience a student point of view
 - Join the class using the teacher provided code (bw1hn88), which will take you to a demo account for a limited time.

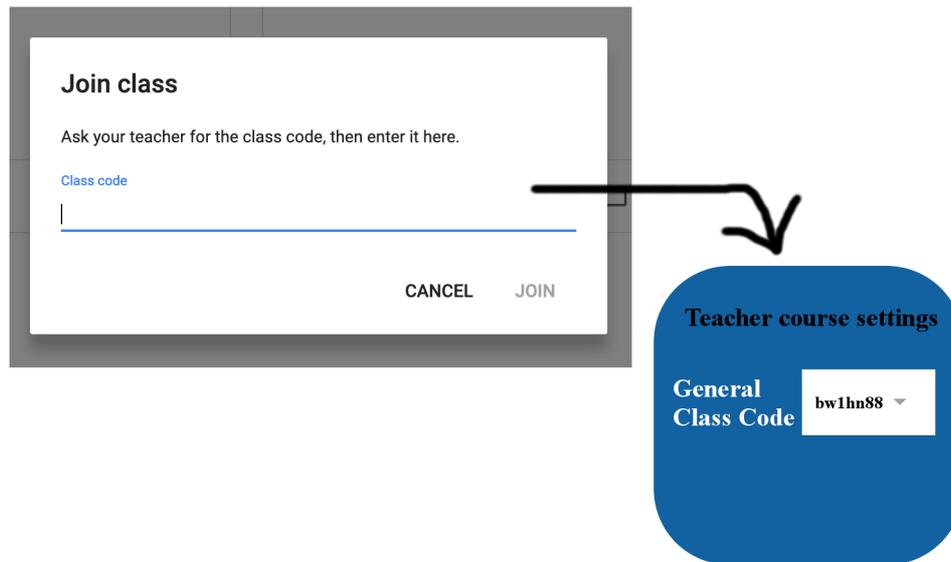


Figure 3. Entering the class code

Once you have had a sneak peek at the demo account, it is time to start your own course. First you need to sign in as a teacher, then create a new course.

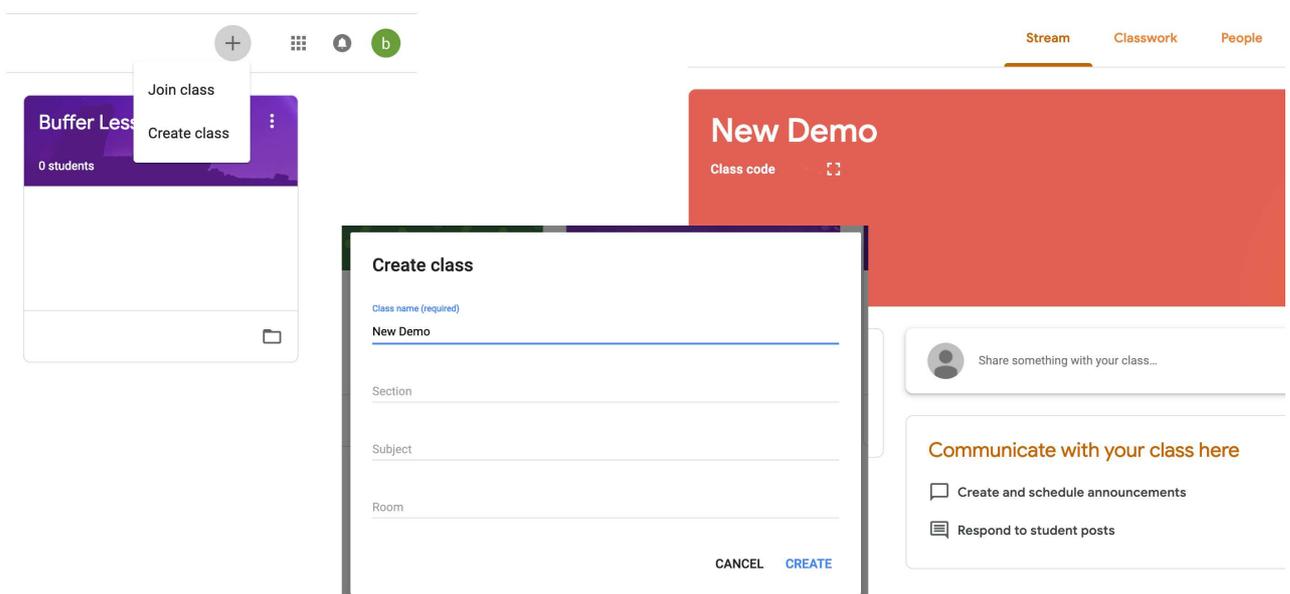


Figure 4. Creating a class

At this stage, it is fairly easy to click around the classroom. The default appears to be the stream section (see right top of Figure 4), but the classwork section is where the assignments are created and organised (see Figure 5).

Setting an assignment

- Click the create button
- Select assignment type from drop-down list (Assignment, Quiz, Question, Materials)
- Next
 - Provide title
 - Instructions
 - Attach documents
 - Set the points
 - Set the due date
 - Set topic (main menu sub-heading)
 - Schedule for sending
- The assignment will be listed in main classwork area under the topic

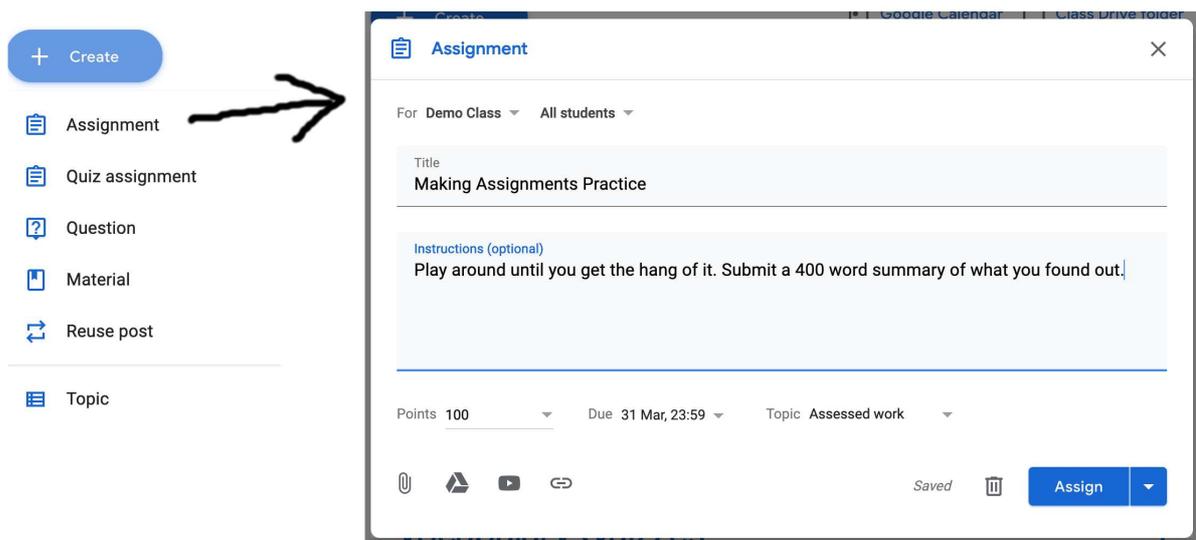


Figure 5. Setting an assignment on Google Classroom

The marking of assignments requires that the teacher click on the student's name and enter directly to the assignment. At this stage the assignments can be graded and comments attached to sections of the student's text. Once marked, the handed in assignments are designated marked. The designation *assigned* means the work was sent to the student, but they have not done it yet.

Teacher impression

Google Classroom was generally very well received, but not without some issues. On the one hand, one teacher commented, “Super convenient, I wouldn't go back if you doubled my salary.” A second teacher stated, “Google Classroom was excellent. I had not used before, but now I would be lost without it.” Yet in contrast, another teacher stated that “marking may not be quite as effective (for me) as writing comments or indicating detailed changes.” That said, all the teachers could see merit in the system, but not all seemed convinced it was totally for them.

Affordance

In terms of the delivery of learning materials, the general feeling was that it was very easy to do and there was the added bonus of having no need to photocopy. It was also commented that students do not lose the handouts and late or absent students can easily get copies. Also, if required, the teacher could make changes to materials and re-deliver in seconds, something teachers could probably not afford to do with photocopies.

The positives of the digital submission process were prefixed with the word “easy.” It was easy, as students could submit anytime 24/7. The teacher could set deadlines and the students were free to submit within the time limit. This was much better for the students and teachers than remembering to bring work to class. Also, it was much more efficient and used zero class time. Importantly, no major technical difficulties were reported with digital submissions.

Once submitted, the teachers also reported that it was easy to mark the work. One teacher noted that it was “easy for the teachers, since all the grades are in one place, and can give immediate feedback.” A second teacher stated that it was “easy to store grading records and create marking excel files for each class. Google docs are great to add comments.” A third teacher stated, “No stacks of papers.” A fourth teacher mentioned, “I think one of the greatest pros is that it's easy to read compared to handwritten work. Systematized submission tools like Google Classroom makes it easy to collect and return the work, compared to each student emailing the teacher, and makes it workable in mid to large size classes.” While the fifth teacher stated, “It's glorious. Fast, easy to grade, students get feedback quickly.”

Troubleshooting

The negatives associated with the delivery of learning materials were quite varied including cheating and technical issues. There was a concern that it was too easy to share materials for the wrong reasons. The biggest negative of the submission process is the potential ability for students to copy and paste another's work and to pass it off as their own. Plagiarism software was available at the school and a general awareness among both the students and teachers that it won't be tolerated probably alleviates the risk. The cons of the digital marking process were probably dependent upon the system being used. One teacher stated "The marking process is impacted by the file type submitted. It's slow and difficult to comment on a Word document, but very easy to comment on a Google doc." At the time of writing Google has improved the ability to mark a Word document. Google docs are still faster, but Word docs are no longer the issue that they once were. One teacher felt they were unable to comment as accurately or easily as they would wish. This may be a matter of adjusting teaching style or waiting for further Google Classroom upgrades. A second teacher was concerned with students incorrectly submitting, leading to non-submission of work. If students kept e-mail notifications switched on, then the system notified them of up-coming deadlines. Also, this can be overcome by teachers at least initially paying attention to who has submitted work and sending an email reminder to those who have not.

3.4. Introducing tech into task-based learning (TBL)

Aim: IT based TBL

Resources: Chrome browser, excellent Wi-Fi, other free software.

IT skill level: Above average/excellent

How to set it up

The school EFL program was initiated from the point of view that technology would be used in the classroom. Given this, it was decided that a task-based learning approach would probably be the most suitable and potentially innovative use of the facilities available. For example, the school requires all students to have Google's Chrome browser. This was somewhat opportune, as it meant the EFL program could make ready use of Google Hangouts which is embedded into the Chrome browser. Google Hangouts is a free p2p video call software, similar to Skype or Facetime. Clearly for speaking tasks it has enormous potential. In addition, some activities were based on Shotcuts, a free open source video editing software.

Step by step procedure

Hangouts

- Open Chrome browser
- Top right side of screen – click Google Apps button
- Click more and scroll
- Open Hangouts
- + new conversation
 - enter partner's Google (gmail) address
- Make video call

Shotcuts

This is interesting free software for Windows and Linux users, but Mac users will most likely prefer to use iMovies. It can be downloaded from <https://shotcut.org/> (for Windows, Mac and Linux), while tutorials are available at <https://shotcut.org/tutorials/>.

Teacher impression

The use of information technologies within a task based learning approach probably offered up the most diverse opinions of the four challenges outlined. One teacher felt there was no need to do this, another felt INIAD, TBL and IT were a logical match, one felt they could match but was dependent on the task, still another reflected that it was very challenging for both teachers and students alike, while one considered it widened the opportunity for a teacher to observe student proficiency and participation.

Affordance

In terms of the pros of using IT in TBL, it was noted as being very doable and the teachers were able to add a certain level of real world difficulty relevant to the students' lives. One teacher commented that it catches the students' interest much better than a conventional style of teaching, involving skills that some students are already familiar with, encouraging them to learn vocabulary related to the task. The pros of Hangouts centred on the perception of output. One teacher stated, "I was quite surprised to see the level of interest and the amount of English

output during the hangouts sessions.” Shotcuts, on the other hand, was seen as interesting and engaging, but little else was stated.

Troubleshooting

The cons of using IT in TBL seemed to be more numerous and clearly showed that this challenge was the most taxing for the teachers. The first concern was that since the tasks were computer centric, they could tend to be quiet and take a long time to complete. There was also a feeling that teachers needed extensive training to be able to explain the task and help the students undertake it. The solution was naturally for the teachers with greater IT knowledge to offer support and explanations to those who were struggling. There may also have been more technical issues with TBL tasks than with general IT usage. For all the positives noted with Hangouts, it did suffer the most technical issues. Usually one group per class would have difficulty connecting. Attempts were made to overcome the connection issue by spreading the students around the school, using different, and more, Wi-Fi access points. However, the issues persisted. The problem was solved, via a work around, by having some groups communicate via an alternative video conferencing application called LINE. This would suggest that the problem was not local to the Wi-Fi network, but more likely a Hangouts throttling limit or student PC issue. This was noted by every teacher and was a consistent and repeated issue. It should also be stated that at least one teacher was doubtful that the perception of increased spoken output using Hangouts was actually real. Since some group members were very active, while others were extremely quiet and passive. The overwhelming stimuli of loud activity may have been misleading. The solution to this issue is research. It would be interesting to know if the teacher was right or wrong. In addition, Shotcuts, while interesting, was seen as time consuming and also tended to create quiet time. One teacher was concerned that a Shotcuts lesson became a movie making lesson, and may not have been completely appropriate to a language classroom. The solution in this case may possibly be to limit software usage to homework activity and revamp the syllabus.

4. A final consideration: The importance of simplicity

One of the primary reasons that this program’s progress has been so smooth is the teachers’ confidence and competence with computers. This is not a boast of the teachers’ superior skills. On the contrary, many of the teachers have fairly average IT backgrounds. In truth, the teachers’ abilities represent the technological change in society and the streamlining, simplification and normalisation of CALL. Twenty years ago, a CALL lab felt like a space

station, it was very different to the typical daily teaching and learning experience. INIAD's classrooms, on the other hand, are simple. The teachers and students use their own computers and they use them for every class. The weight of adaptation to the environment is much lower for all concerned. The teacher experience with Google Classroom follows this pattern. It was highly intuitive and since the teachers used it for every class, the experience of using led to proficient use.

PC and smartphone usage brought to the fore the twin issues of distraction and engagement. All of the teachers noted that student engagement and focus seemed higher than a typical book-based class. The PCs were largely deemed a success. Some concerns with Internet distraction were noted, but it did not define the classroom. One of the reasons students were able to engage was the low level of technical problems. Undoubtedly, the reason there were so few technical problems was the simplicity of the set up. The students were working on a wireless set up and the teacher required one HDMI cord to connect to the projector. Simplicity impacts perception of difficulty and the reality of difficulty. CALL labs can often bring forth a stream of complex non-English issues. The combined Internet, projector, and Bring Your Own Device (BYOD) approach greatly decreased the technical issues faced.

When things are not simple, problems tend to follow. Introducing tech into the task based learning activities was probably the least well received area by the teachers. It provided the greatest level of technical difficulty, it took some teachers outside of their own comfort zone and some of the teachers felt it was unnecessary. In terms of IT and TBL, it would appear the teachers' confidence and knowledge was somewhat low for the range of tasks they needed to perform. Many of the teachers' computing fears of technical meltdowns and lack of IT ability were, to some extent, realized while undertaking the IT specific pedagogical tasks.

5. Conclusion

It seems quite apparent that with a BYOD approach that simplifies the technical burden of teachers and schools, IT can be used to help facilitate EFL learning in a board-less classroom environment. In addition, classroom management software, lesson material creation and lesson presentation all fall within the likely IT ability range of many EFL teachers. Only when the activities step into the area of IT content did teachers find themselves outside of their comfort zone. Overall, the five teachers had a largely positive attitude towards IT enabled EFL classrooms. When the teachers were asked, as a follow up, if they would prefer to go back to a more traditional blackboard style, they all stated that they preferred to work in the IT enabled classrooms.

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