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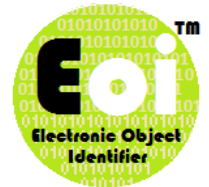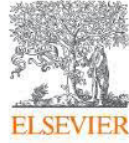*Crossref*
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Where to from here? Generating the New Normal in this Extraordinary Century

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This is the first Presidential Keynote Address delivered at an AsiaCALL international conference. It will not be the last one. The Presidential Keynote Address series was initiated in order to give voice to the leader of the organisation and to the leadership team. Typically, keynote speakers and other featured speakers who address the conference in plenary session are external to the organisation and do not necessarily reflect the viewpoints of the leadership of AsiaCALL. The AsiaCALL Presidential Keynote Address will remedy this situation, and I now cordially invite you to join me for the first AsiaCALL Presidential Keynote Address.

Like other presentations in this conference, I will talk about the future and will focus on certain key issues.

Let me begin with some more or less self-evident assertions about the 21st Century.

Technology

The technological revolution has changed everything with a breathtaking array of new developments. The most Important technologies for the 21st Century – at least the near 21st century (it is quasi-impossible to predict the new technologies of the mid to late 21st centuries) - are likely to be:

Artificial Intelligence (AI) with its focus on Machine Learning, Deep Learning and Neural networks perhaps connected to renewed interest in Expert Systems where rules are no longer generated by humans but by AI itself.

Biotechnology which, if used properly, will enhance our lives in countless ways. Its contribution to language education is already making itself felt. As language educators, we are beginning to recognize that our biology appears to have a strong influence on language processing and indeed language itself, and that we can use that to our advantage. As a simple example from language processing, it is becoming clear that the way our body is constructed does not enable us to process language input sequentially. We would simply drown in information (Christiansen & Chater, 2015). Instead, our body appears to have learned to deal with this issue by bundling input in such a way as to overcome this biological limitation. Another simple (though hypothetical) example is chunk length i.e. the length of what is commonly referred to as a chunk. This normally consists of something between 5 to 9 syllables or has a length of about 1.4 seconds irrespective of language. This universality may be accounted for (hypothetically) by the length of breath an average human takes.

At the other end of the spectrum, biotechnology is helping us with instrumental studies designed, for instance, to enhance perception and production of language (e.g. ERP and fMRI dichotic/diotic processing comparisons (Cai et al., 2021; Lian et al., 2020)).

However, biotechnology has another aspect that is less positive. It can be used not only to improve life (e.g., health-related systems) but also to exploit people. For instance, it can lead to "people hacking" (Yuval Harari speaking on *Sixty Minutes,* 2021) where computer systems will be able to manipulate the minds of humans to the benefit of commercial and other organizations.

The relationship between people and technology also has another very serious dimension. The developments of artificial intelligence will bring about massive changes in the ways in which we lead our lives. As a simple example the driverless car or truck will almost certainly be here in the mid-2030s. This means that over time there is a serious risk that the driving professions will be deeply affected, and millions of people will find themselves out of work. This is not the first time that this kind of phenomenon has occurred, but it is almost certain that nothing on this scale has been witnessed before. Multiply the driving phenomenon with other professions and we have a job crisis of monumental proportions. This will create serious social disruption and will require a fundamental reorganisation of all aspects of society.

Technology also raises another issue:

Moore's Law and Human Intellect. The diagram below represents intellectual growth of humans as plotted against technological growth.
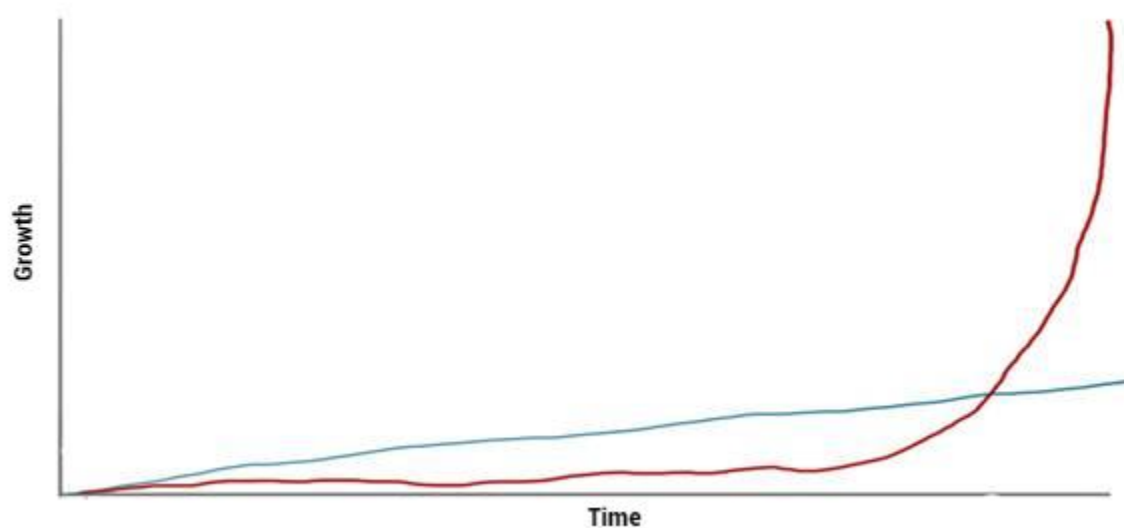
The blue curve represents intellectual growth while the red curve represents technological growth. Clearly the curves are very different from each other, with technological growth responding to Moore's law which states that technological power doubles approximately every two years. While we are dealing with very different notions of power/growth there is a risk that the growth in technological power may push us in directions that are not necessarily beneficial to humanity unless intellectual growth expands simultaneously. While according to the above diagram intellectual growth is in fact occurring, we are clearly not doing as well as technological growth and it would be of clear benefit if the rate of growth could be increased somewhat. Of course, this growth will never be exponential.

So, let me make two points.

The first is that higher education has a critically important role to play. Higher education is important, not because it trains us for specific jobs or careers (maybe that is not the role of higher education anyway) but because it (should) equips(s) us to deal with the unimagined and, ideally, perhaps even the unimaginable.

My second point is that modern technology has an equally important role to play in our intellectual development. In addition to the multitude of ways in which it can facilitate or support learning, technology presents us with countless ways of spurring the imagination to investigate ways of thinking that were previously unimaginable before the advent of that technology. For instance, technology has now made available the possibility of student-generated learning materials based on students' actual needs as determined by the students themselves at the time of the need (Lian, 2014). This is something that was impossible to envisage as little as fifty years ago.

Yet technology can also limit us. This is because, like all other intellectually based systems, it organises the world for us to some extent and therefore limits the ways in which we think. Use of technology must therefore always be carefully assessed in its context of usage so as to maximise its value.

I would now like to move on to my second key point about current life: the Post-Covid Condition (with apologies to Jean-François Lyotard).

The post-covid condition

Right now, we are all in the clutches of an all-invasive world-wide pandemic called Covid-19. This happened with little warning, and the world had to react quickly and with no preparation to avoid a human and economic tragedy of unequalled proportions.

Everyone is now waiting for a vaccine so that we can enter the post-Covid world, a world free from the disease, and get back to our normal lives.

That would be great, but I feel that this is unlikely to happen. Beating this pandemic will not be enough as a new one (or a new variety) will probably come along for several reasons, as we have already seen. On top of that, we already have a history of disease spreading around the world, starting with something as common as "the flu", the bird flu, even Ebola and so on. Ideally, we would have to defeat new pandemics before they start – and that is a huge if not impossible challenge.

Perhaps more importantly, in addition to the health issues, this pandemic has triggered new understandings about how we can lead all aspects of our lives. We have already re-thought new ways of living our lives such as travel, group meetings, workplace location and activities, entertainment, education and many other things.

In learning to do things differently and meeting new challenges, we may also have learned to do them better or even to develop entirely new ways of dealing with certain issues, e.g., online learning. In a sense, Covid-19 has been something of an opportunity.

So, in a way, we may never get back to the old normal in every aspect of our lives, at least in the foreseeable future. Covid-19 has taught us to be vigilant ALL of the time about it and similar diseases, and to protect ourselves against the possibility of infection even if the danger has gone.

Consequences of Covid-19 include, for example, the fact that people can work successfully from home (both employers and employees), that at least adult students can successfully study from home and that it is often possible to replace travel with online meetings.

These NEW understandings are unlikely to change and will stay with us for ever. This is what people have also called the Great Reset – we must reset the world in order to survive. Let me quote from something I wrote recently in a non-academic context: "As the world resets itself and, together, we co-construct the new normal for a life that will never be the same again, we will need, more than ever before, to rely on the fundamental human qualities of ingenuity, imagination, adaptability and resilience in order to lead safe, productive, sustainable, comfortable and satisfying lives". Our lives should be safe (or secure), satisfying and serene.

And it is becoming clear that some patterns from the past will most likely be abandoned. Many of us will work from home or in small-scale, dynamically reconfigurable, shared or co-working spaces not large, centralized buildings.

Working from home, while seemingly attractive, creates new problems. For instance, we will need to redefine "home". At home, we will have to manage work, family children, pets etc. and this may lead to difficulties in the balance between personal and work commitments. Home will no longer be primarily the place where we recover, relax and sleep in order to go back to work the next day. EVERYTHING will happen at home. Meetings will tend to be held online (from home) and the few important ones that require personal contact will often be conducted in shared spaces rather than large corporate buildings.

And, because of the growth of telecommuting (working from home), local communities will grow in importance as we learn to inhabit virtual as well as physical spaces. In some sense, we may revert to something more like the village life of the past while still remaining involved in global activities. Technology will enable all of this to happen, and the decentralization implies will affect everything.

In particular, schools and universities may be less peopled and new community-based models of education may emerge. One of the possible implications of this is that the notion of the traditional classroom may be under threat and may need to be re-conceptualized. The classroom may no longer be so important as we almost certainly move toward personalized, blended, online and self-managed learning.

Actually, it is not all bad at least for education. Although this virus is horrible, it has forced us to rely on technology to do things. In the world of education, no one has been exempted from this and people with no experience or desire to teach with technology have been plunged into the challenge of using it to teach. In the field of language teaching, specifically, people with no experience have suddenly been told to design TELL (Technology-Enhanced Language-Learning) systems from scratch and in a very short time (e.g., "let's do it in 2 weeks").

Surprisingly, in many instances around the world, instead of looking for expert help or turning to new teaching and learning approaches, many organizations decided to use a Do-It-Yourself approach and to improvise as best they could with their old approaches. Sometimes this way of doing things worked and people felt good and sometimes it did not work and people felt bad – this had an impact on attitudes toward technology post-Covid-19. The problem with this improvised approach is that the human, time and financial investments that went into these unprepared initiatives were huge. Because of the size of the personal and financial investment that went into their preparation, it is difficult to throw away so much work and start again even though it may have been unplanned.

Now… we need a plan to move forward and deal with the hurried but valuable work that we did and either replace it with something better or keep the parts that worked. It is not enough to do nothing. One of the critically important features of using technology to teach is that it requires a clearly articulated learning and teaching theory. We cannot improvise as much as we

do in a traditional classroom. The level of planning needs to be much higher. Simply computerizing what we do in a traditional classroom will not be enough. Real TELL development is the antithesis of what happened when Covid-19 hit.

Once we start to engage with it in a sensible manner, technology will reveal flaws and problems that we were unaware of and, ideally, requires us to rethink our theoretical understandings as well as our practices. This offers us a great opportunity to rethink and improve. But rethinking and improving is not just a matter of opinion – it is a matter of research.

When Covid-19 hit, people were often asked to brainstorm solutions. Brainstorming is good but never enough. It needs to be informed. The best source of information is research but not research that simply repeats the past and that we know has failed in the past. We know it has failed because the field is fairly stagnant – we are not doing great right now. We need to seriously consider outliers: researchers are not in the mainstream of the field. Why? Because they can see things that the mainstream cannot see. They will help us to think laterally and innovatively, especially as we are now in a mass market for language education, especially English, where millions of students (both in class and out of class) need to be catered for.

Let me give you some examples from the research that my students and I have been doing at SUT and elsewhere.

This research has been ongoing since about 2014 and has resulted in the creation of what we have called the ALERT research group. It all began with Professor Dr. He Bi (XinYi Normal University for Nationalities), one of my doctoral students who initiated an interesting and original, outlying, research stream that forms the initial driver of ALERT's activities.

The name ALERT stands for Advanced Language Education Research Team. ALERT has a common, intertwined, theoretical framework and its research projects are generally circumscribed by the following theories:

- Verbotonalism (Asp & Guberina, 1981; Guberina, 1956) – perception/production.
- Rhizomatic/autonomous Language Learning (Lian, 2004, 2011) – self-managed autonomous learning
- Self-Organizing Learning Environments (Mitra & Dangwal, 2010) – teacherless project-based learning within a project-based framework.
- Precision Language Education (Lian & Sangarun, 2017) identifying learning problems for each student – a form of research-based personalization and
- a Critical Epistemological Framework for the construction of knowledge and Learning (Lian & Sussex, 2018) – how do we know something? How do we learn?

It draws on technology as needed (and it often does). Clearly, these are not mainstream theories. Here are some examples of the work done by the ALERT group.

Research began with work in pronunciation and trying to improve students' prosody, intelligibility and comprehensibility – not turning them into native speakers but making them operational and empowering them for success. There were many offshoots to this research including enhancing listening comprehension, maximizing fluency and, believe it or not, enhancing academic writing in L2 learners.

How was this achieved? In part through manipulation of the physical auditory signal that learners were exposed to. The techniques used were based on the principle that if you provide the brain with an optimized physical signal then the brain, on its own and without additional work by the student, will enhance language learning automatically. This principle is part of the verbotonal theory.

Did it work? It worked very well, and it has now been extended to some seven other projects in China, Thailand, Vietnam, Indonesia and Australia. Results are published for some, and new results are expected to be published soon.

We now need to conduct large-scale replications, but every project conducted has yielded more than the expected results (some are surprising and will need special investigation). Wherever appropriate/possible a double-blind protocol was applied.

In order to discover more about these phenomena, we are now also conducting instrumental studies scanning the electrical activity of the brain (with Event Related Potentials and blood flow studies using fMRI). These studies are being conducted in China.

The work that we have been doing has not been limited to audio manipulation but has also incorporated autonomous learning and personalization of learning while focusing on perception issues. In developing all of these systems we have discovered two things:

(a) In order to learn SOME things (not everything), students do not have to think about what they are doing or trying to learn in order to get good results. They just need to perform certain activities. Like the old slogan about the value of physical exercise, you don't have to like it, you just have to do it.

In other words, the systems are teacher-less (and therefore teacher-proof) and, essentially, automatic.

The second thing that we learned was that despite the fact that they did not have to "work" at what they were doing other than follow a routine of activities, in every case

(b) students enjoyed doing the required work
     a. became more autonomous and
     b. were motivated to continue and

in some cases, they claimed to be less anxious and/or more confident because they felt that significant improvement in their English had occurred.

This research is leading to the development of automatic/teacherless systems for learning certain aspects of language. It began with pronunciation work (Professor Dr. He Bi, Professor Dr. Yan Yang, Dr. Wen Fengwei – all from China/Thailand) and has now extended to Listening comprehension (Dr. Luu Thi Mai Vy, Vietnam/Thailand), Fluency/accuracy studies (Mr. Zhang Shaobing, China), Academic writing (Dr. Lala Bumela Sudimantara, Indonesia/Australia); Mr. Luqman Baehaqi, Indonesia/Australia) and Mr Cai Xirui (China/Thailand).

The use of Artificial Intelligence approaches such as the development of expert systems based on neural networks and deep learning algorithms will enable the creation of fully automated systems that, within certain domains, will diagnose and monitor some of the students' individual problems (especially in areas like pronunciation and prosody). These systems will be of great value in language learning in the post-Covid period, freeing educational organizations from the obligation to provide classrooms and people who, in any case, will be less efficient than the teacher-less systems. Classrooms and people can be saved for activities that cannot be automatic (so far).

Just as important, though, these studies will give learners opportunities to learn when and where and sometimes how they like. This is a good way of increasing the amount of critical support available for language learning at minimal cost, especially in today's mass market.

So where to from here?

It is the job of the university and researchers in general, the people who attend AsiaCALL International conferences, to lead intellectually. It is our job to create progress for our profession and to avoid stagnation. We need to work together to generate intellectually valid and valuable learning systems, beginning with research and drawing on the best that each of us has to offer. And to do so humbly, with the understanding that even though we may feel certain that we know what needs to be done and how to teach, we are all open to new ideas and new evidence of what works and what does not. Maybe we should give serious consideration to formalizing our relationships with each other through the formation of one or more international centres so that we can move forward smoothly, perhaps a national or international centre for Computer-Assisted Language Learning.

In order to achieve all of this:

- We need to be smart
- We need to be forward-looking
- We need to be brave
- We need to be active
- We need to be visible
- We need to be heard
- We need to connect to each other and to decision-makers,
- We need to participate in the creation of the future and not portray ourselves as helpless victims of "the system"

In short, we need to learn to be in control of our work and of our situation and if we do that, then the NEW NORMAL is in OUR hands!

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Biodata

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Using Flipgrid as an Interactive Application to Improve Filipino Students' Engagement in Language Flexi-Learning

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Abstract

The pandemic's massive impact on schools has pushed teachers and students to migrate online and affected students' class engagement. With this, the action research aimed to 1) analyze the previous experiences of the students with other interactive applications, 2) determine if Flipgrid interactive options are an intervention for improving students' engagement, and 3) evaluate the experiences of the students in using Flipgrid interactive options in asynchronous learning. The research used a practical action research design that utilizes mixed methods to address the study's problem and was conducted at Xavier University – Junior High School in the Philippines. To achieve the desired results, the researchers first gave the interactive questionnaire, followed by a survey questionnaire before and after the implementation of the proposed intervention, and conducted a focus group discussion to gather more in-depth information. Twenty respondents took the pre-test, and 17 took the post-test. The results of the data from the statistics and information gathered during the focus group discussion show that students are favorable of the features of Flipgrid. There is also a highly significant difference between the pre-test and post-test results, which means that the proposed intervention, comment section, and view counts effectively alleviate the challenge of students' engagement in asynchronous learning. Based on the perceived response from the participants, Flipgrid, in general, is a great tool to boost students' engagement. Thus, the researchers recommend that teachers maximize the use of Flipgrid for asynchronous sessions.

Keywords: Flipgrid, Students' Engagement, Asynchronous Learning, Online Learning, Interactive Applications

Introduction

In the Philippines, the proliferation of COVID-19 cases shoots up day by day. This pandemic has brought massive changes not just to the healthcare system and the economy but to academic institutions as well. Students and teachers were forced to resort to online learning as the face-to-face setting was strongly prohibited. Online learning has become the new norm, with a vast number of students taking advantage of it. However, as it has become the mainstream of

learning, a lot of loopholes have been found. One of them is the lack of students' engagement, specifically in asynchronous learning. Students' engagement in asynchronous classes tends to be low because synchronous learning is more effective than asynchronous learning. A study presented by Alhih et al. (2017) claims that there is an increase of interaction in synchronous sessions rather than in asynchronous sessions that enables students to be present simultaneously with the teacher, just like conventional classrooms, which have student-teacher interaction—bringing alarm to the teachers as they need to ensure that learners are still learning despite the new setup.

Teachers are required to stay connected with their students through the use of technology. However, one downside of this is the students' engagement in class on how much they are involved in asynchronous sessions. Students' engagement can be limited only to submissions of tasks and assignments. There is hope, however, that this can be upended if the teacher constantly encourages students to interact with their peers' work.

Although there are many benefits of providing learning content online, online classes are often met with skepticism. The question of how to involve students successfully in online courses generates more questions than responses. There is a need to find relevant studies on the key topic of students' engagement strategies in online courses and determine which methods work based on empirical studies (Chakraborty, 2017). Students must actively participate for the sake of creating a potent learning environment. Hence, they must reciprocate the learning process by reacting, commenting, and providing feedback on peers' work — leading to student-to-student engagement and not just teacher-to-student engagement in asynchronous learning.

One of the ways that teachers can improve student engagement is through the use of interactive applications like Flipgrid. Flipgrid allows students to interact and engage with each other in ways not possible before, which can, in turn, help increase social presence in online courses. The first specific objective of this research was to analyze the students' previous experiences with other interactive applications. The second specific objective was to determine if Flipgrid interactive options are an intervention for improving students' engagement. Furthermore, the researchers evaluated the effectiveness of Flipgrid interactive options as an intervention for improving students' engagement. In sum, their usage of this app leads to classroom engagement that is being studied in this research.

Literature review

Following the DepEd Order No. 21, s. 2019 and No.12, s. 2020, implementing online learning as the new learning mode has been observed in the academic year 2020-2021. With this, the delivery of lessons is made through two types of classes: synchronous and asynchronous classes. In an asynchronous class, the students will not meet with their teacher. However, the students are still required to complete tasks that will have to be submitted on a specific date, such as assignments, group, and individual works, reflective essays, short video responses, and quizzes to be taken after class. The good thing about asynchronous learning is that students will

have to work at their own time and pace within the confines of their own homes. This is supported by a study conducted by Hoang and Tran (2022), which found that students had a positive attitude about online education as they found it to be beneficial since it provided them with flexibility and convenience. Similarly, Dau (2022) also mentions how teachers and students had opportunities to be exposed to the abundant teaching and learning resources online and how, through asynchronous activities, students could learn at their own pace and time, so they understand the lessons better.

One such tool that aids in online learning is Flipgrid. Flipgrid is a video-based tool that allows conversations and connections across digital devices, but enjoyably and engagingly that makes it ideal for use in education. It is structured to help with group discussions but in a way that doesn't leave any student on the spot. It is very helpful as it allows less socially able students to express their ideas and emotions with their classmates. The ability to re-record responses helps alleviate students' pressure when communicating, making this a very enabling tool for education (Edwards, 2022), especially for language learning, where the pressure to perform is high.

As Edwards (2022) mentions, one of the best things about Flipgrid is the capability to interact using different media like video, such as face-to-face in the real world, but without the pressure of a live classroom. Since students are given the space and time to respond when they're ready, it makes educational engagement possible for even more anxious students who might feel left out in class. The app allows students to add rich media and encourages them to be creative and, potentially more importantly, expressive. Using emoji, text, and stickers, students can participate in class as they might interact with friends using social media platforms. This aspect can help students feel less hesitant and more confident to express themselves openly, engaging more deeply with the task, which ultimately results in deeper understanding and better recalling of lessons and content.

Research conducted by Lowenthal and Moore (2020) states that if students can interact and communicate better with each other, they can develop a stronger sense of social presence and classroom community, which can help them persist and be more successful in their online courses.

Flipgrid has several features and options for students' engagement. One feature would allow students to view and comment (view counts and comment section) on their peers' work (video) posted in the interactive tool under the activity set by the teacher. Pillai (2019) started a study about how one comment can lead to a cascade of comments. The study showed that if one's content has one comment, it is 54% more likely to be followed by another comment. Thus, engagement among students gradually increases like a domino effect. Through these conversations, comment sections lead to the formation of a virtual learning community.

Moreover, Flipgrid allows students to interact and engage with each other in ways not possible before, which can, in turn, help increase social presence in online courses. In addition, Holbeck and Hartman (2018), as cited by Lowenthal and Moore (2020), found Flipgrid to be an effective and relevant educational tool. Furthermore, a study by Delmas and Moore (2019), as cited in

Lowenthal and Moore (2020), explored the use of Flipgrid in undergraduate and graduate classes and students reported that they felt that their feelings of community and connection were made stronger using Flipgrid. They reported that it helped increase students' engagement and communication in a secondary classroom.

Research suggests that instructors can use Flipgrid to support the type of collaboration and engagement they seek in their online courses (Gurjar, 2020; Mejia, 2020; Moore, 2016). Students in their study found Flipgrid to be a valuable tool for promoting social presence through asynchronous video discussions.

Nowadays, students are digitally literate regarding how technological devices work. During synchronous and asynchronous classes, students show how tech-savvy they are in manipulating and navigating their Learning Management System (LMS) and how interactive applications are utilized in the classroom. Students manifest this skill of being digital experts and require no teacher supervision. That said, they are ready to participate in this action research using the intervention that the researchers will propose.

Although there has not been much research done about Flipgrid, this action research will help teachers and students in different institutions by subsequently adapting the proposed intervention. This contribution would be a huge steppingstone to a new era of learning.

Research Objectives

This research is designed to aim the following objectives:

General Objective: To utilize Flipgrid as an interactive application to improve students' engagement in language asynchronous classes.

Specific Objectives:

1. To analyze the previous experiences of the students with other interactive applications;

2. To determine if Flipgrid interactive options are an intervention for improving students' language learning engagement; and

3. To evaluate the students' experiences in using Flipgrid interactive options in asynchronous learning.

Methods

Pedagogical Setting and Participants

The study was conducted in Xavier University Junior High School or XUJHS for the school year 2020-2021 through online asynchronous connections.

Xavier University Junior High School (XUJHS) is a Jesuit school located in Cagayan de Oro, Misamis Oriental- a city from Mindanao, Philippines. From the year 2020 up to the present,

XUJHS was temporarily shut down due to pandemics and COVID-19 health protocols. Thus, the learning was continued using the new method of education — flexible learning/online learning. Currently, XUJHS uses Microsoft Teams (MS Teams) as the school's main learning management system (LMS), where teachers and students communicate and collaborate in learning during synchronous sessions. MS Teams was also the official learning platform for teachers where they post announcements, activities, and assignments for students during asynchronous sessions.

In this action research, the researchers used the purposive sampling method in conducting the study. Purposive sampling can provide reliable and robust data. An English class from the Grade 10 level was chosen to participate in the study. Each section has 20-25 students under the age range of 15 to 17. These students were selected as they were the most suitable respondents for answering the action research's objectives — providing as rich data as possible. The whole class used Flipgrid in their classroom activities. Out of the 25, 20 participated in the pre-test, while only 17 participated in the post-test.

Design of the Study

This paper follows a practical action research design that utilizes a mixture of qualitative and quantitative methods that address the problem of the study. The data collected sought to understand and determine whether the utilization of the interactive application (Flipgrid) and its features (such as comment section and view counts) are the intervention in improving students' engagement in FlexiLearning. The study has utilized three research tools: inventory questionnaire, students' engagement evaluation (known as the pre-and post-test survey questionnaires), and focus group discussion (FGD).

Data collection and analysis

The researchers fully observed ethical procedures in all aspects of the study. Resnik (2020) highlighted the idea that the researchers should follow ethical norms because they promote the goals of the study; knowledge, truth, and avoidance of error. Ethical norms also promote the important values of collaborative work; trust, accountability, mutual respect, and fairness.

The data gathering procedures were all done on an online platform. It was made sure that no class hours were taken and/or conflicted by the researchers in the process. The implementation of the study was all done during asynchronous sessions of the students.

In the first procedure of data gathering, the researchers asked permission from the moderator of the class. The distribution of the consent and assent forms followed. A week was given to the respondents and parents to comply so that they would have ample time to decide whether or not they would participate in the study. The respondents who submitted the consent and assent forms were the only ones who could wholeheartedly participate in the study.

In the second step, the researchers distributed the inventory questionnaire to assess students' knowledge and use of digital tools. Along with the inventory, a questionnaire was a pre-test survey questionnaire. These two survey questionnaires were distributed online using Google

forms with the help of the respondents' moderating teacher. It was made sure that the respondents answered the inventory and pre-test without experiencing the intervention first. When the intervention phase was over, the respondents then answered the post-test students' engagement evaluation survey questionnaire. The inventory questionnaire and pre-and post-test were all floated in the first week.

In the second week of the action research implementation, the researchers conducted a focus group discussion to strengthen the respondents' experiences with the interactive application and its features as an intervention. In conducting FGD, proper preliminaries were observed, and the respondents were assured about the confidentiality of their identities. The questions were asked conversationally so that the respondents would not find the researchers intimidating. Overall, the whole duration of the data gathering procedure lasted two weeks.

The researchers analyzed the students' experiences using Flipgrid interactive options in asynchronous learning by conducting an FGD (Focus Group Discussion). It gave the learners an avenue to answer various questions that encapsulates their experiences while utilizing Flipgrid. And also, the effectiveness of Flipgrid as an intervention for improving students' engagement was calculated through the data gathered in the pre-test and post-test. In analyzing the data gathered, the researchers will utilize T-test (unpaired) inferential statistics to see a significant difference in the pre-test and the post-test results. It is used to determine whether there is a significant difference between the means of the two groups. To interpret the mean scores before and after the intervention, the following scoring guidelines were used:

Table 1.

Interpretation of Score Range

1.00 - 1.74	Not Engaged
1.75 - 2.40	Somewhat Engaged.
2.50 - 3.24	Engaged
3.25 – 4.00	Highly Engaged

Results/Findings and discussion

Specific Objective No. 1: To analyze the previous experiences of the students with other interactive applications.

In gathering the data, the researchers provided an inventory questionnaire to know the learner's prior background regarding what tools they utilized in an online class and whether it helped them be more engaged. A total of 20 students out of 30 took the inventory questionnaire for interactive application. Students were asked about the digital tools they have used in the online classroom, and the results show that 90.5% of the learners responded that they use Microsoft Teams in their online classroom, while 9.5 % answered Flipgrid.

When asked about the learners' feelings about utilizing digital tools to improve their engagement in online learning, 85.7% answered "YES" when asked if they feel digital tools

would help them to be more engaged in online learning, while 14.3% of respondents answered "MAYBE."

When asked what kind of digital tools will help increase their engagement and communication, 66.7% of the respondents answered Flipgrid, 95.2% to Microsoft Teams, 14.3% to Google Classroom, and 4.8% said Edmodo.

Next, learners were asked to rate how comfortable they were with creating a digital portfolio. 28.6% of the learners gave a perfect 10 when asked if they were comfortable creating digital portfolios, 14.3% gave 8 and 9, about 19% responded with 7, 14.3% gave 6, and 9.5% answered 5.

Lastly, learners were asked to rate how comfortable they were in using Flipgrid for online classes. 14.3% of the learners responded 8, 9, and 10 as their ratings when asked if they are comfortable utilizing Flipgrid. 28.6% answered 7, 9.5% - 6, 4.8% - 5 and 14.3% gave 4.

Overall, most of the learners actively answered the inventory questionnaire, which lets the researchers know what digital tools they use in their online learning and whether it motivates them to be more engaged in class. The results show that 90.5% of the learners use Microsoft teams, and 85.7% positively responded: "YES" when asked if the digital tools help them be more engaged in class. 66.7% of the respondents chose Flipgrid as a tool that would enhance their communication skills. When asked about their comfortableness in creating a digital portfolio, 28.6% gave a perfect rating. And only 14.3% of the learners gave an excellent rating of "10" when asked if they are comfortable using Flipgrid. This data will be used to support the study of the effectiveness of Flipgrid in improving students' engagement in asynchronous learning.

Specific Objective no. 2: To determine if Flipgrid interactive options is an intervention for improving students' language learning engagement.

Table 2.

Test of Significant Difference between Pre-test and Post-test scores

	n	M	SD	p
Pre-test	20	2.82	0.432	0.0045
Post-test	17	3.28	0.495	

The pre-test and post-test questionnaires measure the respondent's attitude during asynchronous sessions using Flipgrid. With the data presented above, the overall mean of the pre-test for 20 students is 2.82. It means that most of the students agree on the effectiveness of Flipgrid in enhancing students' engagement. On the other hand, the post-test has an overall mean of 3.28 for 17 students. This means that after the intervention was conducted, students now strongly agree on how effectively Flipgrid boosts their engagement during asynchronous sessions.

To determine the significance level of the data, the researchers calculated the p-value. Hence, the p-value is 0.0045, which means a highly significant difference between the two tests (pre-test and post-test). If the p-value is greater than 0.5, Flipgrid and its features, as the researchers claim to improve students' engagement in asynchronous sessions, will be nullified. The evidence of this significant difference can be seen in both the pre-test and post-test. The results of the pre-test show that they have not yet established a relationship with their peers. Students responded that they have less interaction with their peers during asynchronous sessions. They are passive and just comply with their tasks without going the extra mile to interact with their classmates using the available features in Flipgrid. What (Lowenthal and Moore 2020) claim that if students are able to interact and communicate better with each other, they can then develop a stronger sense of social presence and classroom community, which can help them persist and be more successful in their online courses. In addition, (Lowenthal and Moore 2020) reported that Flipgrid could be utilized in secondary classrooms, as Flipgrid helps increase students' engagement and communication during asynchronous sessions. Furthermore, after implementing the intervention, and based on the information gathered in the post-test, students made a stronger connection with their peers using Flipgrid and its features. Overall, the data presented above pertains to the effectiveness of the intervention that contributed to students' engagement during asynchronous sessions.

Specific Objective no. 3: To evaluate the experiences of the students in using Flipgrid interactive options in asynchronous learning.

The researchers conducted a Focus Group Discussion (FGD) to gather more information and gain an in-depth understanding of using Flipgrid as an interactive application to improve students' engagement in FlexiLearning. Due to the current situation, the FGD was conducted through google meet with 15 participants from the class. When asked about their experiences in Using Flipgrid during English Language Learning, one student replied that Flipgrid was already introduced to them in the previous school year and that it is a fun application because it is an excellent way to know the opinions of their classmates. Another responded that Flipgrid is a fun application because of the features students can add text and background music, while another mentioned that Flipgrid is easy to use, flexible, and fun to participate in class. When asked what the things they do in Flipgrid are, they answered process questions, shared their opinions and ideas, shared information about their assignments, and were encouraged to comment on another's video. Students were also asked about how they feel when they see that their work has a lot of views on Flipgrid and whether this motivates them to view and engage with other students' work as well. One student shared that they feel accomplished and realized they had done something worthwhile, while another said that it is an excellent way to increase motivation and work harder. Students were also asked if getting feedback from their peers helped them to be more engaged in creating videos. To which they answered that they are happy when their classmates watch and leave comments on their videos and that the comment feature allows students to be more united and an avenue to know more about their personalities. Students also mentioned that they would be more encouraged to exchange one's opinions with

those who leave a comment on their videos, and they believe that it would be best if they interact with their peers so that they will be closer with their classmates like never before. When asked about the features that they look into in using applications like Flipgrid and what features did you like the most, students responded that they like the fact that Flipgrid is a user-friendly application. Students can add pictures and emojis and even create thumbnails to attract more viewers. Lastly, when asked whether they see Flipgrid as an effective tool that the teachers can utilize in class, students mentioned that Flipgrid is an effective tool because they are allowed to relay their thoughts. They also admit that they rarely participate during the synchronous session. Thus, Flipgrid can bridge the gap to interact with their peers and teacher. They also mention that Flipgrid can help teachers gain knowledge and understand their students' personalities while affirming that Flipgrid is effective because of its convenience, where learners can access the application through their mobile devices, taking videos and uploading them directly.

These findings confirm the study of Pillai (2019), which mentions that engagement among students gradually increases like a domino effect. Through these conversations, comment sections lead to the formation of a virtual learning community. This also supports the findings of Gurjar (2020), Mejia (2020), and Moore (2016), which suggest that instructors can use Flipgrid as a tool to support the type of collaboration and engagement that they are seeking in their online courses.

Overall, the participants' responses showed that Flipgrid is an interactive application that can improve students' engagement in FlexiLearning. Flipgrid is an effective tool for students to participate in asynchronous sessions by answering processing questions given by the teacher. Through creating videos, students can share their thoughts and ideas and exchange opinions with their classmates. In this way, students will also be able to gain new knowledge or perspective from their classmates. The application's features also affect the overall students' engagement. Furthermore, the participants mentioned that this application is easy to use, flexible and convenient. Overall, Flipgrid is an effective application that teachers can utilize in class to improve students' engagement.

During the focus group discussion (FGD), 15 participants joined the Google Meet, where the discussion was conducted. Overall, the participants agreed that commenting and viewing videos on Flipgrid improves students' engagement in asynchronous learning. In correlation to the preceding statement, Delmas and Moore (2019) explored the use of Flipgrid in undergraduate and graduate classes, and students reported that they felt that their feelings of community and connection were made stronger using Flipgrid. The study conducted by Delmas and Moore will be further elaborated in the information gathered during the focus group discussion. As supported by the participants' response, seeing that the video they posted on Flipgrid has views and comments from their peers, they become more accomplished and motivated to do the same thing (about commenting and viewing). In this way, students mentioned that they could be closer to their classmates, and they become more encouraged to exchange opinions with the person who commented on their video. Furthermore, students emphasized that the comment

feature on Flipgrid allows students to be more united, especially after synchronous classes, and it is an avenue for them to know more about their peers' personalities and thoughts.

The majority of the participants in the focus group discussion shared the same sentiments that they do feel happy that their peers leave comments on their work and that they feel glad that their work is being viewed ― leading to a realization that they created something worthwhile, making them want to work harder. Thus, this answers the Flipgrid features such as the comment section and view count as an effective intervention to improve students' engagement in asynchronous learning.

The effectiveness of Flipgrid and the intervention in improving students' engagement was certified by the students in the results of the Focus group discussion (FGD) and survey questionnaire. Students saw how helpful Flipgrid was both in asynchronous and synchronous sessions. Despite this learning setup, they still find Flipgrid as an avenue of learning even without the supervision of their teacher in asynchronous sessions.

With the results, it has been hugely affirmed by the students that it is not only effective during synchronous sessions but also in asynchronous sessions as well. The efficacy of the intervention conducted boosted their self-confidence, strengthened student connectivity, and most especially enhanced their engagement.

Students also highlighted that Flipgrid as an interactive application is student-friendly, very flexible, convenient, and most especially easy-to-use. In correlation with the results shown in the Focus group discussion (FGD), survey questionnaires, students are satisfied with the overall feature that Flipgrid has. In addition, with the use of Flipgrid features such as the comment section and view counts, students are more productive, motivated, accomplished, and confident if these two specific features are utilized in the activities. As seen in the results of the survey questionnaire, both overall means have a huge difference, and the p-value is 0.0045. This means the data is highly significant. Overall, the students' perceived effectiveness of the interactive application was up to their standards. Students are genuinely happy with Flipgrid; they enjoy using it even when used and integrated into the face-to-face sessions in the future. They also recommend Flipgrid for lower batches and visualize the impact of Flipgrid for future use.

Conclusion

Interactions with content, peers, and instructors help online learners become active and more engaged in their courses. In achieving a potent learning environment, student interaction is best paired with high-quality instruction and effective learning outcomes. However, students' engagement in Flipgrid would not be possible without the supervision of teachers. The teacher also plays a vital role in activating students' engagement in asynchronous learning. Hence, giving clear instructions for activities and constant reminders to students are key factors that would encourage students to participate in both synchronous and asynchronous learning. The volume of videos and engagement hours and the favorable survey findings and group discussion

from the research project demonstrate that Flipgrid increases students' engagement in asynchronous learning. As previously mentioned, one of the factors for Flipgrid evaluation was determining its effectiveness in an asynchronous setup.

Upon having a group discussion, learners regard Flipgrid as a fun and effective tool that allows them to freely communicate ideas with their classmates by viewing and leaving comments on their videos. It also motivates them to make an effort in creating their videos as they feel accomplished and have done something worthwhile if it gets many views. They also considered it student friendly as it is easy to navigate and offers a variety of features that learners can explore. Based on their feedback and the survey results, the researchers discovered that using Flipgrid enables them to be more engaged by interacting with their classmates. In addition, the pre-test and post-test findings indicate that learners' perception of whether the Flipgrid is an effective tool for engagement has improved after experiencing it firsthand. The findings imply that Flipgrid is a useful tool that teachers can use in their online classes if they have problems increasing their students' engagement in an asynchronous setting.

From the findings and implications stated above, Flipgrid is a tool that teachers can employ with their online classes to support collaboration and engagement between students. With this, the researchers conclude that Flipgrid is an effective interactive tool that teachers can use to improve students' engagement during asynchronous learning further and recommend its use, especially during online asynchronous learning. As the action research is only limited to one section of Xavier University Junior High School's Grade 10 students currently taking the English subject was only pursued in two weeks during the participants' scheduled asynchronous class in a said subject through the online platform; future researchers are recommended to consider a longer time for study and observation, as well as considering other similar platforms.

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E-learning Experience of Nguyen Trai High School Students

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Abstract

With the rapid spread of the COVID-19 pandemic and the fact that most students of all grades in Vietnam were not fully vaccinated in 2021, the students had to study online for the first semester of the school year. Therefore, the students at all levels, in general, and the high school students, in particular, had a fully online learning experience. This research investigates the experience of the high school students in e-learning in the case of Nguyen Trai High School in Ninh Thuan Province. The data was collected via online questionnaires toward the end of the first semester of the 2021-2022 academic year to find out about the e-learning experience of the students at Nguyen Trai High School in Ninh Thuan Province. One hundred seventy-four participants were involved in the study by responding to the online questionnaires. The study's findings revealed that most students had a favorable experience with e-learning. However, some drawbacks need to be considered for further development in e-learning education in high schools.

Keywords: experience, high school students, E-learning

Introduction

To reduce the adverse effects of the COVID-19 in the case that high school students were not fully vaccinated against COVID-19, the Ministry of Education and Training of Vietnam ordered schools at all levels to switch to online learning. To prevent high school students from being severely impacted by the pandemic, schools, universities, and institutions were placed on lockdown until widespread immunization occurred. Educational institutions across the country had to shift from traditional education modes to online modes of education. Therefore, students, as well as teachers, must adapt to fully remote online learning. Although many felt unprepared during the transitional period, they did not have an option but to use online learning. Because of the inexperience of both students and teachers in online learning, this quick transition can be difficult (Barbour & Reeves, 2009). Even with high school students in industrialized nations where online learning is fast expanding, there was still 10% of high school students with no experience in e-learning (Barbour & LaBonte, 2017). Teachers must be capable of using technological tools for education and a variety of applications along with conducting e-classroom-sessions so that the students will have scaffolding in technology for e-learning and

have a good online learning experience. In fact, the feelings and experiences of insiders or learners are central to determining the effectiveness of e-learning. Therefore, it is critical to understand students' online learning experiences to help educational authorities and institutions better understand students' challenges and improve their online learning experiences. Although we have a good understanding of students' characteristics and outcomes in online courses, we have little understanding of their overall experiences in such contexts. (Blackmon and Major, 2012). Additionally, the majority of recent research was limited to students in high school education. With the motivation of unveiling the truths regarding the students' readiness and satisfaction with e-learning, the research is to find out the feedback of high school students regarding their experience with e-learning in the case of Nguyen Trai High School.

Literature review

Theoretical background

E-learning, often known as online learning, is the term commonly used all over the world, especially during the COVID-19 pandemic. However, the term has different meanings with various descriptions and opinions based on many authors' research fields or experiences. According to Tamm (2019), e-learning or online learning or electronic learning is the acquisition of knowledge by instruction and content delivered primarily through electronic technologies and media. Online learning is the application of the Internet and other significant technologies in creating materials for program management and educational objectives. (Fry, 2001). Bates (2016) claims that online learning is a type of distant education in which a program is designed to be delivered entirely online. In addition, a few experts describe e-learning as the education given entirely through the Internet or web-based media. Online education, on the other hand, is defined as education offered exclusively through web-based media or through the Internet (Lee, 2017). Online education is described as the application of internet-based technologies to bridge the gap between teachers and students (Ryan & Young, 2015). Traditional educational institutions all around the globe have long made use of Internet-based learning, sometimes known as remote learning or online education (Bartley & Golek, 2004). E-learning is defined by Singh and Thurman (2019) as the experience of learners in either synchronous or asynchronous scenarios utilizing a variety of devices (e.g., mobile phones, computers, and so on) that can connect to the Internet. The timing and location of teaching and learning activities change between asynchronous and synchronous learning. According to Alqurashi (2019), one key difference between asynchronous and synchronous online learning is the interaction between the learner and the material, as opposed to the teacher or other students.

Previous studies on learners' experience in e-learning

As Talidong & Toquero (2020) point out, most schools still face difficulties in virtual learning because not all instructors and students are familiar with the applications of e-learning. As a result of the COVID-19 pandemic, students' online learning experiences have also revealed

numerous difficulties, such as connectivity issues (Basuony et al., 2020), IT equipment problems (Bczek et al., 2021), a lack of opportunities for collaborative learning (Bczek et al., 2021), and a lack of motivation for schoolwork (Niemi & Kousa, 2020). Basuony et al. (2020) found that 13.9% of Cairo students had internet connection concerns. In some rural cities in Indonesia, however, about two-thirds of the students complained about unreliable Internet, limited data, and improper study tools (Agung et al., 2020). Another factor is the accessibility of appropriate technological devices to satisfy the requirement for online learning. Nearly 76% of college students reported utilizing inadequate technology for online learning, with 15% using a laptop and 85% using a smartphone (Agung et al., 2020). Although online learning is still a difficult time, educators, teachers, and experts debated whether online learning could benefit all students. Kurucay and Inan claimed that (2017) there is some proof that online courses can boost students' achievement. According to Clark (2007), there is little evidence from the previous studies suggesting that well-prepared traditional learning is more effective than well-prepared online learning and vice versa. In addition, Navarro & Shoemaker (2000) confirmed that students are quite satisfied with their online learning experiences, and their learning outcomes are comparable to or better than those of conventional. Another discussion, as stated in the study of Hoa Sen University in 2021, revealed that the university students favored e-learning due to its flexibility and convenience. (Hoang & Tran, 2021). Beamish, Armistead, Watkinson, and Armfield (2002) also claimed cost efficiency, access, and flexibility as advantages.

A great deal of evidence exists showing that no significant differences should be expected regarding the effectiveness of well-designed online learning compared with well-designed in-person learning (Clark, 1983; Russell, 1999). However, not many students are willing to admit, adapt as well as respond positively to the implementation of online learning. According to Joshi et al. (2020), students consider that the most significant weaknesses of online learning are the lack of hands-on experience and lower quality of instruction, while the most significant threats are the vulnerability to scams or academic dishonesty, as well as societal skepticism about the quality of online education. In addition, according to Grundmann (2010), one important drawback of online courses is the lack of laboratory and hands-on experience. Students have different levels of acceptance of changes in the learning process. Age, cognitive capacity, and the students' interest in technology can impact this. Students tend to behave differently in online learning, with mature students expressing higher enthusiasm. Gender and the number of online experimental courses students take in a semester are two characteristics that substantially impact students' barriers to online learning (Muilenburg and Berge, 2005).

Many teachers argue that online education is not a replacement for classroom instruction or other methodologies. It is only a temporary solution to our difficult situations. According to Pham, N. T., & Nghiem, H. V. (2022), while educators in the research acknowledged online education's benefits, they also reported that blended learning provided safer, better quality results for their students. Sigh & Thurman (2019) mentioned that online learning might also be seen as a way of utilizing technology to make the teaching-learning process more student-

centered, inventive, and adaptive. It has been discovered that technology employed as teaching tools or supportive media in education cannot replace the physical interactions between students and teachers. (Miller, 2020). In fact, Derouin et al. (2005) found in a review of prior research that it is difficult to determine that e-learning is more, less, or equally successful at the learning level as traditional classroom-based training.

Research Questions

   1. What is the high school students' experience on E-learning at Nguyen Trai High School?

   2. How are Nguyen Trai High School students' readiness and satisfaction with e-learning?

Methods

Pedagogical Setting & Participants

The research was conducted at Nguyen Trai High School in Ninh Thuan province (former Duy Tan High School, built-in 1954) with a total school area of 15,000 m2. Over 60 years of establishment and development, the school has trained many generations of successful alumni and contributed to creating human resources for the development of the province.

During the first semester of the school year 2021-2022 (September 2021 - January 2022), due to the impact of the COVID-19 epidemic, the whole school learned online. Specifically, all teachers and students had accounts on Microsoft Office's Teams system. On Teams, each class was divided into a group, and the teachers assigned to that class were added to that group. All teachers and students were guided to use Teams for learning and teaching with files and videos. An online period lasts 35 minutes instead of the usual 45 minutes.

Most of the students participating in this study are in grade 11 of the school. In general, they all have average or higher academic ability and are able to use computers or smartphones to study. In addition, in the previous school year, 2020-2021, they were also familiar with online learning due to the COVID-19 epidemic. Although, at that time, online learning did not last for a whole semester like this year, it was interrupted from 1 to 2 weeks intervals.

Design of the Study

The survey was conducted to describe the experiences of high school students during the first semester of online learning. The survey questions were given out in Google form after the end of the 1st semester and the beginning of the 2nd semester when the students returned to face-to-face learning at school. The writers adopted the questionnaire (Obidat, Alquraan & Obeidat, 2020) to illustrate the aspects of the student's online learning experience. Research methods are both qualitative and quantitative. Quality is reflected when students were asked for opinions about the usefulness of online learning or satisfaction. The quantity is shown in tables as numbers and percentages.

Data collection & analysis

The questionnaire consisted of 24 questions and was divided into eight parts. All of the questions were multiple-choice, 23 of which had a Likert scale with values ranging from 1 to 5 (Strongly disagree, Disagree, No Opinion, Agree, Strongly Agree), only the last one asking about students' feelings ranging from 1 to 7 (Absolutely terrible, Very dissatisfied, Dissatisfied, Quite satisfied, Satisfied, Very satisfied and Absolutely delighted).

Results/Findings and discussion

Results in students' experience in E-learning

This study examined factors that characterize students' online learning experiences at the high school level. The data was collected through questionnaires administered to 174 participants who were enrolled in the Nguyen Trai high school. The questionnaire implemented at the end of the 1st semester gave a return rate of 100%. The analysis of the data revealed eight factors that characterize their online learning experiences, including (i) Perceived Ease of Use as (PE), (ii) Perceived Usefulness as (PU), (iii) Subjective Norm as (SN), (iv) Intention to Continuous Use as (IC), (v) Learning Community as (LM), (vi) Learning content as (LN), (vii) Learning Personalization as (LP), (vii) User satisfaction as (US). From the students' perspectives, the experience of taking advantage of the e-learning system reflected users' acceptance and satisfaction, social pressure, and quality of the online learning platform.

Table 1. Perceived Ease of Use

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1. Learning to operate the e-learning system would be easy for me	12/174 (7%)	17/174 (9.9%)	82/174 (48%)	48/174 (28.1%)	12/174 (7%)
2. It would be simple for me to get the e-learning system to perform what I want it to accomplish.	7/174 (4.1%)	13/174 (7.6%)	76/174 (44.4%)	66/174 (38.6%)	9/174 (5.3%)
3. It would be simple for me to learn how to use the e-learning system.	6/174 (3.6%)	17/174 (10.1%)	73/174 (43.2%)	58/174 (34.3%)	15/174 (8.9%)
4. I believe the e-learning system is simple to utilize.	9/174 (5.3%)	8/174 (4.7%)	73/174 (42.7%)	68/174 (19.8%)	13/174 (7.6%)

Nearly half of the students (48%) chose neutral when being asked whether it was easy for them to operate the system, whereas 28,1% agreed and 7% strongly agreed. The percentage of those who disagree and strongly disagree was slightly lower, at 9,9% and 7%, respectively.

A similar pattern can be observed in the other three categories, with "neutral" making up the largest scale and more people turning to a positive attitude rather than the negative one.

Table 2. Perceived Usefulness

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
5. Using an e-learning system would help my learning.	7/174 (4.1%)	17/174 (9.9%)	81/174 (47.4%)	50/174 (59.2%)	16/174 (9.4%)
6. Using an e-learning system to learn might boost my learning productivity.	10/174 (5.9%)	26/174 (15.3%)	78/174 (45.9%)	39/174 (22.9%)	17/174 (10%)
7. Using an e-learning system might improve my learning efficacy.	8/174 (4.7%)	22/174 (12.9%)	78/174 (45.6%)	48/174 (28.1%)	15/174 (8.8%)
8. I would find the e-learning system useful in learning	9/174 (5.3%)	8/174 (4.7%)	64/174 (37.4%)	71/174 (41.5%)	19/174 (11.1%)

In terms of perceived usefulness, there was an insignificant variable in the table. Specifically, 59.2% of the students agreed that utilizing the e-learning system would improve their learning, making it the first preference. "Neutral" ranked second with 47.4%, while the figures for "disagree" and "strongly agree" were relatively similar, at above 9%, and the percentage for "strongly disagree" was much lower. The same trend was reflected in "finding the system useful in learning".

With regards to the other two measurement scales, the number of people selecting "neutral" was dominant in both, followed by "agree". Surprisingly, more people responded with "disagree" than those who strongly agreed and strongly disagreed.

Table 3. Subjective Norm

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
9. People who influence my behavior would think that I should use the e-learning system for learning online	13 (7.6%)	26 (15.2%)	86 (50.3%)	38 (22.2%)	8 (4.7%)
10. People that important to me believe that I should utilize an e-learning system to learn online.	6 (3.5%)	22 (12.8%)	82 (47.7%)	51 (29.7%)	1 (6.4%)

The writers explored how other people 'people who are important to students and those who have an influence on a student's decision-making) reacted to the implementation of e-learning. While most reported neutral, a mild but obvious trend emerged that people who influence children's behavior agreed more on applying e-learning platforms.

Table 4. Intention to continue the use

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
11. I aim to continue utilizing the e-learning system if I have access to it.	8/174 (4.7%)	17/174 (9.9%)	76/174 (44.2%)	57/174 (33.1%)	14/174 (8.1%)
12. Given my access to the e-learning system, I anticipate that I would continue to use it.	9/174 (5.3%)	9/174 (5.3%)	81/174 (47.9%)	59/174 (34.9%)	11/174 (6.5 %)

Some (around 34%) participants agreed to keep studying online, with only less than 10% strongly agreeing, but almost half (42-48%) felt neutral. A minority (10-15%) refused to continue using e-learning platforms in the future. This level of intention seems to reflect a quite high possibility of continuous use.

Table 5. Learning Community

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
13. I can easily discuss questions with other students thanks to the e-learning system.	10/174 (5.8%)	20/174 (11.7)	74/174 (43.3%)	53/174 (31%)	14/174 (8.2%)
14. The system of e-learning makes it easy for me to access the shared content from the learning community	7/174 (4.1%)	6/174 (3.5%)	72/174 (41.9%)	63/174 (36.6%)	24/174 (14%)
15. The e-learning system makes it easy for me to discuss questions with my instructors	8/174 (4.7%)	19/174 (11%)	79/174 (45.9%)	50/174 (19.1%)	16/174 (9.3%)
16. The e-learning system allows me to share what I learn with the learning community easily	9/174 (5.3%)	11/174 (6.4%)	72/174 (42.1%)	63/174 (36.8%)	16/174 (9.4%)

Students were asked to think about the learning community they were involved in when studying online, and most (approximately 45%) neither agreed nor disagreed that the learning community enabled communication with instructors and peers and provided easy data accessibility. A lower but still relatively large proportion of participants agreed that it was simple for them to ask questions and exchange ideas with other students, while only some found it easy to discuss questions with teachers.

Table 6. Learning Content

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
17. The e-learning system delivers current content.	8/174 (4.6%)	14/174 (8.1%)	80/174 (46.2%)	54/174 (31.2%)	17/174 (9.8%)
18. The e-learning system provides content that exactly fits my needs	9/174 (5.3%)	10/174 (5.8%)	86/174 (50.3%)	52/174 (30.4%)	14/174 (8.2%)
19. The e-learning system provides sufficient content	6/174 (3.5%)	14/174 (8.2%)	86/174 (50.6%)	47/174 (27.6%)	17/174 (10%)

When asked about the characteristics of learning content, most students cited "neutral". 31.2% of the respondents agreed that the content was up-to-date. More people agreed the content was innovative and exactly fits their needs rather than being sufficient, while content adequacy had a higher number of people who strongly agreed.

Table 7. Learning Personalization

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
20. The e-learning system enables me to learn the content I need	9/174 (5.3%)	10/174 (5.8%)	78/174 (45.6%)	61/174 (35.7%)	13/174 (7.6%)
21. The e-learning system enables me to choose what I want to learn and content that exactly fits my needs	6/174 (3.5%)	10/174 (5.9%)	84/174 (49.4%)	55/174 (32.4%)	15/174 (8.8%)
22. The e-learning system enables me to control my learning progress	9/174 (5.2%)	12/174 (7%)	86/174 (50%)	51/174 (29.7%)	14/174 (8.1%)
23. My learning progress and performance are tracked by the e-learning system.	8/174 (4.7%)	8/174 (4.7%)	89/174 (51.7%)	56/174 (32.6%)	11/174 (6.4%)

While most participants reported a neutral attitude towards the learning personalization level that the platform offered, for some, it was negative. More than 30% reported the platform worked effectively in assisting students to achieve their goals and better control their learning pace.

Table 8. User satisfaction

	Absolutely terrible	Very dissatisfied	Dissatisfied	Quite satisfied	Satisfied	Very satisfied	Absolutely delighted
25. How do you feel about your overall experience of the e-learning system use?	8/174 (4.6%)	5/174 (2.9%)	10/174 (5.8%)	65/174 (37.6%)	61/174 (35.3%)	18/174 (10.4%)	6/174 (3.5%)

Overall, most of the participants showed a high level of satisfaction in e-learning, 73% were satisfied, and 14% were very satisfied or absolutely delighted when using the system. A minority of students revealed that the system did not fulfill their requirements. 5.8% were dissatisfied, and 7.5% were very dissatisfied or felt absolutely terrible.

Discussion

Perceived Ease of Use (PE) and Perceived Usefulness (PU)

Previous research reveals two critical criteria among the numerous variables that may validate the experience of utilizing an online learning system (Davis, 1989). The first one is PE - Perceived Ease of Use, which is described as the level of confidence a user has about effortlessly using a certain scheme. In addition, Perceived Usefulness (PU) refers to how confident a user is in better performing their job with the support of a certain scheme. The participants in this study evaluated the efficiency of the system in e-learning. The majority of them shared the same agreement and belief that the system is a useful and effective instrument for building their knowledge. Furthermore, the easiness of the online learning platform was also surveyed. A good proportion of learners replied that the platform is straightforward to implement.

According to the technology acceptance model, while there is a lack of rational measurement methods for interpreting user acceptance of e-learning systems (Davis, 1989), Perceived Usefulness (PU) and Perceived Ease of Use (PE) are quite important in terms of user acceptability(Abbad and Jaber, 2014). In other words, these two variables imply usage behavior and determine user technological acceptability. In terms of Perceived Usefulness and Perceived Ease of Use, this study finds that the users have an optimistic attitude toward the usage of e-learning and the system value. This indicates a relatively high level of user satisfaction and user acceptance. Kurucay and Inan (2017) argued that there is some evidence that e-learning may improve students' performance. Whereas Derouin et al. (2005) discovered in a review of existing studies that it is difficult to tell if e-learning is more, less, or equally effective at the learning level as conventional classroom-based instruction. Clark (2007) also stated that previous research has not shown that well-prepared traditional learning is more successful than well-prepared online learning or vice versa.

Subjective Norm (SN)

Subjective norms refer to the individual's perception of whether the significant others support their behavior. That is to say, subjective norms indicate a user's intention to use a technology system (Ajzen, 2022). In this study, two-thirds of people who are either important to students or have an influence on students' behavior agree that in current times, the e-learning system is a great source of learning as well as a good practice of knowledge sharing. While educators in the study recognized the advantages of online education, they also claimed that blended learning delivered safer, higher-quality outcomes for their students. (Pham, N. T., & Nghiem, H. V.,

2022). It has been shown that the use of media and technology in the classroom is beneficial but that virtual interactions cannot fully replace face-to-face instruction (Miller, 2020).

Intention to Continuous Use (IC)

There is a correlation between Perceived Ease of Use, Perceived Usefulness, Subjective Norm, and Intention to Continuous Use in this study (Abbad and Jaber, 2014). The participants are shown to have quite a strong intention and motivation to continue using this online learning system in the future. Navarro & Shoemaker (2000) revealed that students are highly happy with their online learning experiences, and their learning results are equivalent to or better than traditional ones. Another debate, as indicated in the research of Hoa Sen University in 2021, demonstrated that university students liked e-learning owing to its flexibility and ease. (Hoang & Tran, 2021).

Learning Community (LM)

The learning community in this study includes conversations between learners and their peers and their instructor and data accessibility. It can be seen that there were effective online communities using technology in interactions and sharing. In this study, a large number of students agreed that they feel free to share their personal ideas and interact with their peers in a meaningful way. The reason why students do not have effective collaboration may lie in the fact that they do not feel comfortable enough to either discuss questions with their teacher privately or pose a public discussion. Ryan & Young (2015) mentioned that the term "online education" refers to the use of various forms of internet-based technology in order to facilitate communication between educators and their students.

Learning Content (LN)

Many (above 30%) participants reported that the system in e-learning provides greater value to the courses. The platform manages to cater to over 50% of online learners' needs despite the challenge that not all online learners have the same expectations, preferences, or learning goals. Moreover, the amount of knowledge was quite well controlled, so learners were made sure not to be cognitively overwhelmed. According to Fry (2001), online learning is defined as the application of the Internet and other significant technologies in the creation of materials for program management and educational objectives.

Learning Personalization (LP)

It is observed from the data that many learners (37,7%) are facilitated to manage his/her own learning progress. Around 42% of participants are able to personalize the experience by selecting the course content and using its multiple types. All of these allow learners to follow their own learning path and, as such, boost the quality and speed of education (Essaid, Hassan, and Adnani, 2011). So that is the reason why Singh and Thurman (2019) stated that e-learning is defined as the experience of learners in either synchronous or asynchronous scenarios utilizing a variety of devices (e.g., mobile phones, computers, and so on) that can connect to the Internet.

User satisfaction (US)

The level of user satisfaction well correlates with the characteristics mentioned all above. Most (nearly 90%) students range from quite satisfied to absolutely delighted, which means that generally, the online learning system fulfills the learner's needs. Ngo, D. H.(2021) stated that an increase in students' motivation to study might be expected if teachers become more skilled at using the Internet's benefits to design more engaging online classes. This means that students are more actively involved in their online education.

Conclusion

This study explored factors that characterize a learner's experience in online learning. The constructive attitude shown in every category suggested that students valued the e-learning tools. Specifically, the learning content and learning personalization have the strongest positive feedback towards the system.

In spite of the perceived advantages of e-learning, this study points out that there is still room for improvement, especially in terms of usefulness. Consequently, operating e-learning courses should be considered with sensitivity to the effect positively on learners' experience of online platforms, particularly for the accessibility of data in the learning community.

Lastly, educators such as the school administrators, policymakers, and course designers may benefit from this study as data samples can assist in measuring students' acceptance, identifying the cause for rejection and determining the following strategy for correction, and speeding up the rate of adoption.

Limitations of the Study

It is thought that this research has certain constraints, reflecting on the sample size. Although the sample size of 174 is statistically significant, it is considered undersized compared to the total number of this high school, which is 1851. In addition, the collection of data was mainly limited to the students who were attending Nguyen Trai high school. As a result, it may not fully represent the diversity of attitudes in other regions. Future research should involve multiple high schools in different areas.

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Biodata

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Implementing the Flipped Learning Comprehensive Model (FLCM) through Basic Informatics Course, Van Lang University, 2021 – 2022

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Abstract

During the implementation phase of the Elearning teaching system for the 2021-2022 school year, with the requirements set forth for the subject of research and implementation of the teaching system, it is possible to apply flexible teaching for a group ranging from 0% to 100% of students and online learners. At the same time, it encourages students to actively participate in learning throughout the learning content deployed by the subject. We have focused on research and implementation of the comprehensive Flipped Learning Model, The Flipped Learning Comprehensive Model – FLCM, which uses H5P interactive teaching content to provide instant, attention-grabbing feedback for students. Furthermore, we also implement the development and rearrangement of learning materials and learning activities that require learners to complete their studies according to the set course schedule. Besides the development of content, we also have interactive lectures that return immediate results to help attract students to complete the course. We have implemented the FLCM model during the 1st and 2nd semesters of the academic year 2021 – 2022, with more than 12,000 students. At the end of the course, we collected statistics on positive and proactive changes in students through learning activities on the Elearning site implemented by the FLCM method. Due to the content with interactive videos, the number of active students increased by over 70%.

Keywords: *eLearning, LMS Moodle, LMS, H5P, FLCM*

Introduction

Recently, online learning is a new model of education in the age of information and technology. Nowadays, almost all universities in the world consider digital learning a strategic asset to reach people.

General Informatics course, which was implemented E-learning in 2018 - 2020 from phase 1 to phase 3 by Van Lang University, has been introduced at the international conference Asia CALL International Conference & VLETESOL 2021 and published in the AsiaCALL Online Journal (Tran Thi Yen Nhi, 2021). With the initial first steps, courses that apply the Flip classroom model can be applicable to both offline and online classes following new requests and increase the positive engagement rate in students. As new situations arise, the course develops teaching procedures and course materials that are flexible for both offline and online learning. To satisfy the learning outcome criteria of the course and education program and to change the mindset of lecturers and students, there needs to be a procedure combining LMS and LCMS in teaching and learning through the E-learning model.

Literature review

In the process of implementing the E-learning system, we have read through the research of Koohang, Riley, and Smith (2009), which have come up with a learning model in the E-learning environment based on constructivist theory. This model includes the following three basic elements: Design of learning activities, Assessing the learning process, and The role of a teacher or guide. The design of learning activities includes coordination, cooperation, and problem-solving, the importance of 21st-century skills to learners (Hiroyuki, 2021). Together with the study of the author group Lo, C. K., & Hwang, G. J. (Chung & Hwang, 2018) elucidates three possible directions for future studies of teaching methods according to the flipped classroom model, including a model framework. The description proposed in the flipped learning model includes four aspects: research background, course design, course activities, and outcomes. In the course design section, the authors also suggest activities before learning, during and after learning (Koohang, Riley, & Smith, 2009) (Oproiu, 2015). And in our research and implementation in the stages of implementing the online teaching system Elearning, there are many similarities in the construction of the flipped classroom model and the organization of activities before, during and after class. However, these studies rely too much on videos and student initiative.

For this stage of implementation, we want to stimulate active learning in students through the comprehensive flipped classroom model (FLCM) built based on the combination of the perspective and scores of both teachers and students. This model is built based on the preparation of questions from the learner and the answers from the teacher in order to immediately provide learners with the fastest answers during the class-based learning process, reverse learning (Reyna, 2019). These materials will be provided to learners through the subject's LMS, one learner-centered training method. The target audience for this subject is first-year students from many different majors, so the entry-level is not uniform. For this model, the identification of training subjects helps to research and evaluate more accurately, from which there are training methods and selection of appropriate technologies to include in the development of learning materials (Rekhari, 2018). However, it should be emphasized that the communication between the teacher and the learner, the pedagogy, the approach, the planning, the development of the training route and the agreements of the two sides play a very important role in creating and motivating learners in the training process. Simultaneously promoting the development of lectures with interactive videos, H5P is also important (Sharp & Sharp, 2017).

The content management system (LCMS) includes learning materials, reference materials, and teaching slides in the form of electronic files through attachments on LMS, Rich Media and H5P. Electronic lectures are published as web pages with rich content ranging from text, images, animations, videos, games, etc. It provides students with a whole new learning experience. Lectures are published in the form of a website so that students can actively view the content anywhere, on any device (Han, Liyue, & Cheng, 2017). In addition, the application of Microsoft Sway to the design of Rich Media supports teaching, helping teachers easily view evaluation reports on the content that students are interested in. The report helps determine what content needs to be developed to suit students' abilities and direction. H5P is an open-source authoring tool used to design interactive learning content for students and provides immediate

results. It allows the creation of content such as interactive videos, presentations, quizzes, games, and even interactive eBooks with great flexibility.

Method

We continue to use the eLearning system that has been implemented since phase 3, basically including Learning Management System (LMS); Content Management System (LCMS); Real-time Virtual Classroom. For learning management system - Learning Management System. The school is currently implementing LMS Moodle along with the online classroom organization platform (Virtual Classroom) MS Teams, which is recommended by the United Nations Educational, Scientific and Cultural Organization (UNESCO) as one of the solutions for distance learning. For the Virtual Classroom system, the course uses MS Teams which is built into the Microsoft Office 365 suite. Currently, students and teachers throughout the school have been provided with this account, and this account has been synchronized with all school support websites.

Table 1. Summary of models that are implemented through stages

Period	School years	Proportion of content delivered Online	Type of Course	Typical Description
0	2016 or earlier	0%	Tradional	Course where no online technilogy used – content is delivered in writing or orally
1	2017 -2018	1 to 20%	Web Facilitated	Course that use web based technology to facilitate that essentially a face to face course. May use LMS to download document.
2	2018 - 2019	1 to 80%	Blended	Course that blends online and face to face delivery. Substantial proportion of the content is delivered online , typical uses online discussions and typically has a reduced number of face to face meetings.
3	2019 - 2020	80 - 100%	Flipped	A Course where most or all of the content is delivered online. Typical have no face to face meetings.
4	2021 – 20220	0 – 100%	FLCM	The FLCM method is based on the cooperation of teachers and learners. Focusing on building interactive online lectures, responding to instant answers to attract learners, increasing interactivity and matching the requirements of the new situation can teach face-to-face and online.

- Stage 1: 2017 - 2018, implementing E-Learning level 2, learning materials are provided through https://hoctructuyen.vanlanguni.edu.vn/. At this stage, 100% of learning is still offline.

- Stage 2: 2018 -2019, implementing E-Learning level 3, with 80% of the learning is still offline while 20% is online. Learning resources along with practice tests and discussions have been made available online.

- Stage 3: 2019 – 2020, implementing E-Learning level 4 with online time constitutes 50% -100%. Flipped classroom model is implemented, and learning resources are getting more diverse.

- Stage 4: 2021 – 2022, implementing E-Learning level 4 with online time reaches 100% or online classes applying FLCM. The comprehensive FLCM is used widely, and learning activities have cohesion with each other, forcing students to pay attention during class and results are returned quickly to encourage students to finish the course.

The Flipped Learning Comprehensive Model (FLCM)

The FLCM method is implemented to support learners better, create cohesion between different content, and increase the engagement rate in learners. The model is developed based on the preparation of questions from the learners and answers from the lecturers to provide immediate student results. These learning resources will be provided through LMS, and this system will be learner-centric.
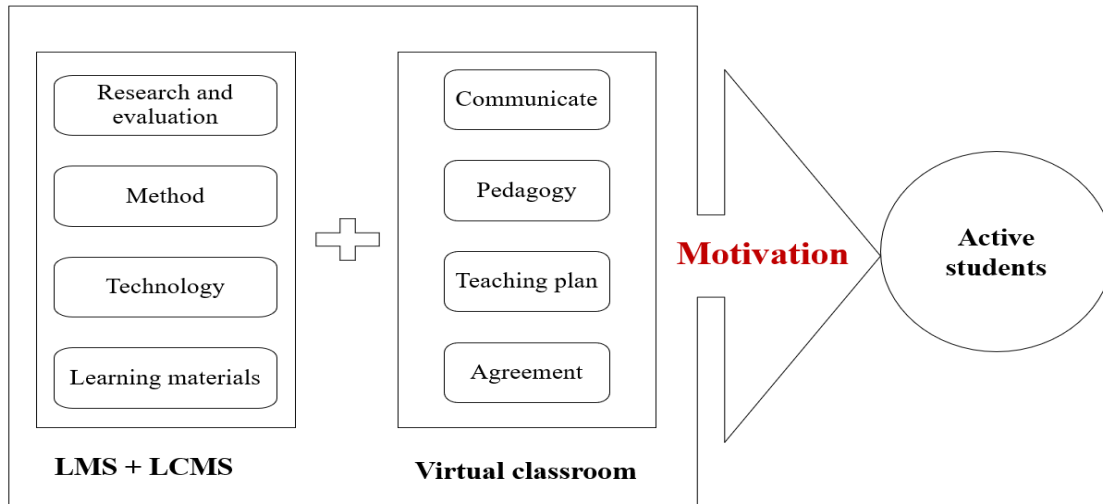

Figure 1. Implementation of E-Learning with Flipped classroom model (FLCM)

The research target for the course is first-year students. And adjustments to the implementation of LMS, real-time classroom on MS Teams and study methods before, during, and after class will be based on the survey at the beginning of the courses. With every result obtained, an appropriate adjustment will be made for each module chapter to suit the learning outcomes published in the course's detailed curriculum.
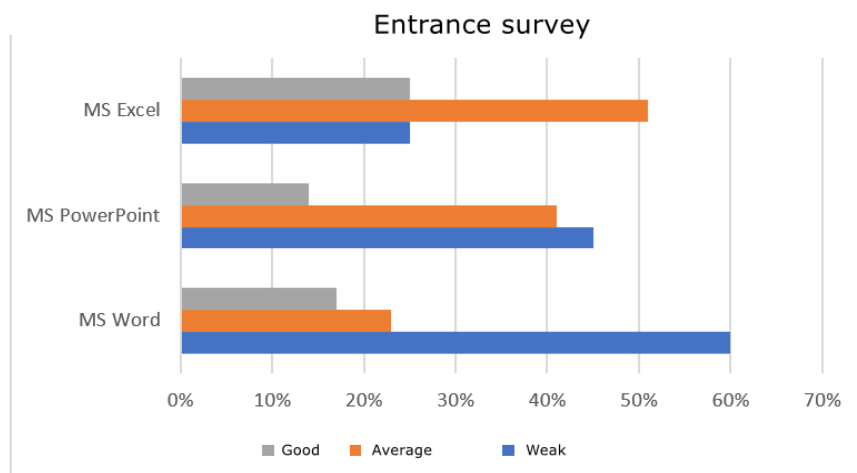
Figure 2. Entrance survey results: Students' competency with MS Office Word, PowerPoint, and Excel, Semester I 2021 - 2022
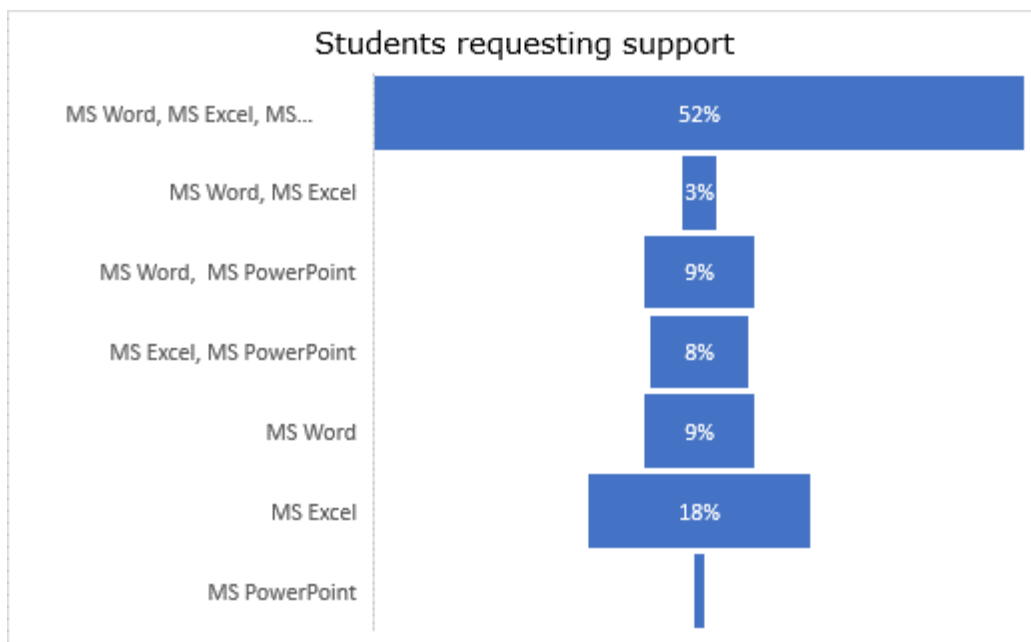
Figure 3. Survey results: MS Office software that students need help with, Semester I 2021 - 2022

Appropriately identifying targets helps with research and evaluation. From that, picking the right methodology and technology is easier. However, it is worth emphasizing that the communication process between learners and lecturers, educational methodology, and planning is important to encourage students in the learning process.

Educational Methodology

The core of the Flip classroom model is a positive learning experience and increasing the engagement rate of students. Educational methods that facilitate positive student learning experiences are Problem Based Learning - PBL, Learning by Doing, Project Based Learning - PBL, and Peer Learning - PL. The appropriate method is selected based on the content and nature of the course. For Module 2 on basic usage of computers, the learning method is problem-solving through common problems when using computers. For Module 5 presentation design, Project Based Learning will be implemented, and students are given a choice to pick and design their own presentation along with a video. To implement the Flip classroom model, lecturers have to equip learners with essential knowledge such as: What is the Flip classroom model? What are the benefits? What are the learning activities? When persuading students about the benefits of this method, lecturers need to emphasize the soft skills that the students will gain as a result: learning digitally, independent problem-solver, and lifelong learning.

Table 2. Comparison: Different methods of learning and their levels of challenge based on Bloom's taxonomy

Module	Subject Goal	Educational methods	Bloom's taxonomy					
			Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Module 1	CELO1, CELO7	Peer Learning - PL		X				
Module 2	CELO2, CELO7	Problem Based Learning - PBL			X			
Module 3	CELO5, CELO7	Project Based Learning - PBL			X			
Module 4	CELO6, CELO7	Learning by doing			X			
Module 5	CELO4, CELO7	Project Based Learning - PBL				X		
Module 6	CELO3, CELO7	Peer Learning - PL Problem Based Learning - PBL			X			

Planning

If the activities before, during, and after the classroom are precise and cohesive, they will strictly follow the curriculum. Implementing a 100% Flip classroom model for offline and online classes reverses the order of the classroom and requires students to read notes and do their assignments before class. Students can access their lecture slides on all digital devices and study easily. During class, students and lecturers can focus on a case study, research and discuss further content; With this model, the learning experience is spread out before, during, and after class. Learning and education methods are diversified: LCMS, textbooks, video, rich media eBooks, advanced materials, online discussions, and interactions between students and between students and lecturers.

Special attention must be devoted to interactive videos in this process. There must be no more than five units of content to be delivered in a video and the maximum time for each video is 15 minutes. It is important to consider whether online or offline learning is to be implemented and pick the appropriate videos. Furthermore, videos need to have questions for learners to answer immediately after every lecture, as this helps improve students' learning experience. Detailed learning plans must be announced on the website with clear instructions and steps to be taken before, during, and after class. The study plan is divided into three main activities: Activity #1: At the beginning of the class, Activity #2: detailed content (during class), and Activity #3: Evaluation (after class).

Rules

The course focuses on the procedure and consistency of the learning process. It also takes advantage of the Restrict access function of LMS Moodle to restrict access to certain content and require students to finish a certain course before moving on to the next. Students are required to finish prerequisites. Activities will be evaluated based on criteria designed by lecturers, such as submit/view date, group, grade, and student.

Communication

In the E-Learning model, especially with the Flip classroom model, students' engagement rate and proactivity play a crucial role. Therefore, it is important to have agreements and instructions at the beginning on how to use support materials and rules and regulations. There need to be

adjustments, and time allocations for activities before, during, and after class. Lecturers will monitor and adjust this study activity, and all resources will be published on E-Learning. Besides study guides, E-Learning will also have a detailed curriculum with specific learning outcome criteria, content and schedule for students. Study goals for the whole course or just individual modules will be published according to the Bloom chart (Bloom, 1956).

Table 3. Aims of the level of students' understanding per course based on Bloom's taxonomy

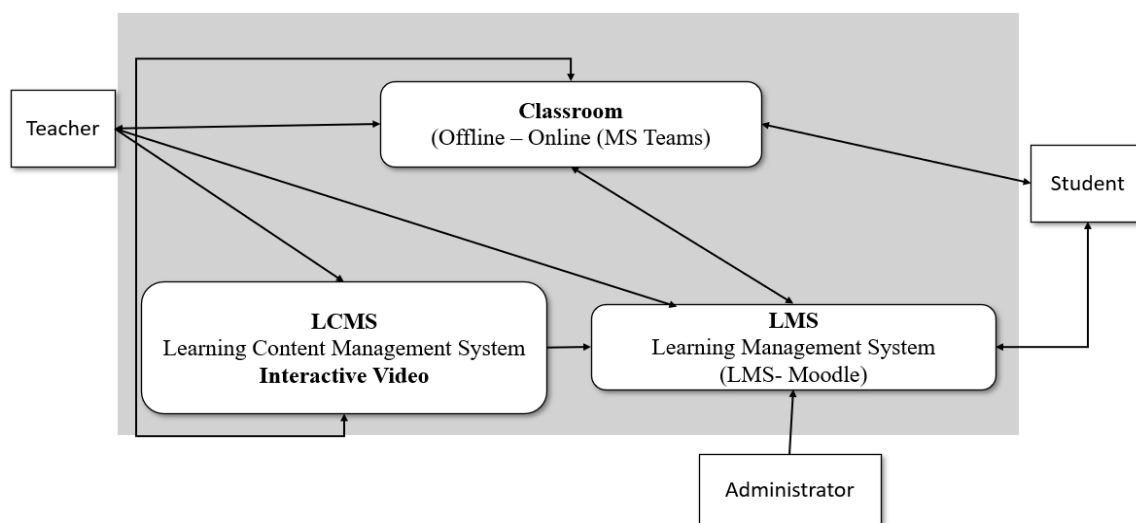| Subject Goal	Subject Content		Bloom's taxonomy					
			Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
CELO1, CELO7	Module 1	1.1	X					
		1.2		X				
CELO2, CELO7	Module 2	2.1		X				
		2.2			X			
CELO5, CELO7	Module 3	3.1	X					
		3.2			X			
		3.3				X		
CELO6, CELO7	Module 4	4.1	X					
		4.2		X				
		4.3		X				
		4.4			X			
CELO4, CELO7	Module 5	5.1		X				
		5.2			X			
		5.3				X		
CELO3, CELO7	Module 6	6.1		X				
		6.2			X			

E-Learning stage 4 2021 – 2022

Figure 4. Model of implementation of E-Learning stage 4 2021 - 2022

Model E-Learning:

- Learning Management System (LMS)
- Learning Content Management System (LCMS)
- Virtual Classroom through Microsoft Teams (Virtual Classroom) in real-time
- The announcement, forum to discuss (Forum)

– Resources: study guide, books, lectures, interactive videos, videos, question banks, and exercises.

– Study support

– FLCM (The Flipped Learning Comprehensive Model)

Implementing LMS and LCMS phase 4

Phase 4 is being implemented from 2021 - 2022

FLCM (The Flipped Learning Comprehensive Model) is implemented in this phase. The online time will be 100%. At this stage, the old model is still kept intact along with Classroom Procedure and learning resources: study guide, books, lectures, interactive videos, videos, question banks, and exercises. However, during this phase, LMS and LCMS work together closely to create an interactive studying platform through restricted access content and interactive videos. The increasing responsive rate in students and convincing students to do online learning. The dashboard system also updates the function to display the amount and frequency of students subscribing to E-Learning and build a framework that predicts and detects absent students. To prepare for this stage, lecturers have undergone courses on managing the LMS Moodle, such as "Learn Moodle 3.11" by Moodle.org and "Transitioning from teaching offline to online" by AUF.

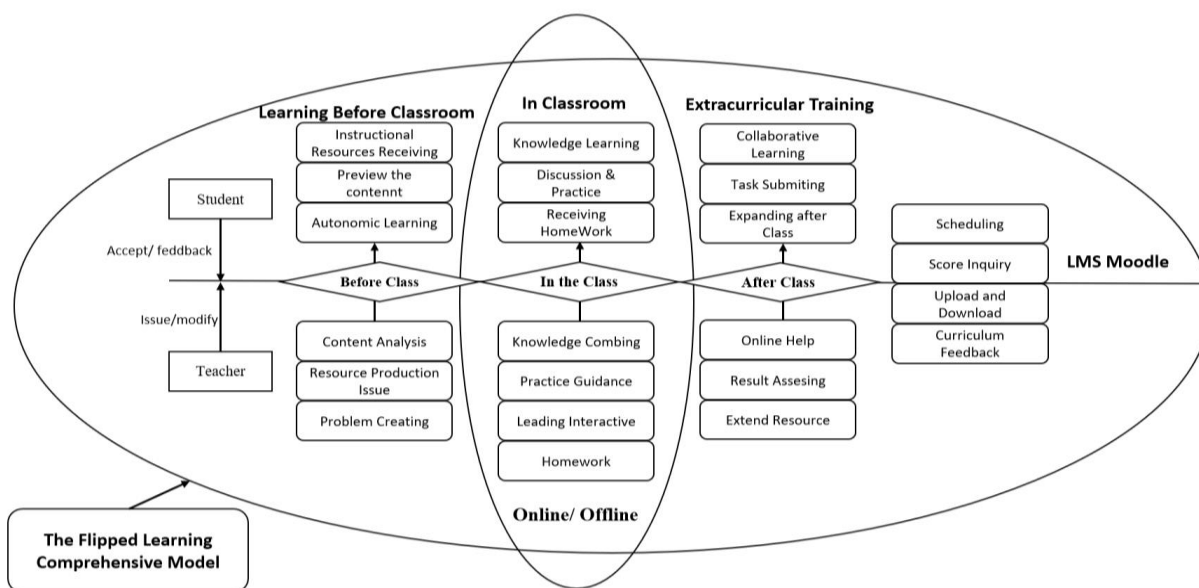*Learning organization procedure*

Figure 5. The Flipped Learning Comprehensive Model

Learning Management System uses LMS Moodle 3.9 with an updated user interface and function to improve user experience. The LMS at this stage improves upon functions that have been implemented in phase 3: Assignment, Quiz, Grade Report, Grate calculator, and Attendance. The functions are also developed to help students manage and monitor their learning process easier.

Results

General Informatics course was implemented in E-learning in 2017 - 2018, 2018 - 2019, 2019 – 2020 (Tran, Nguyen, Do, & Nguyen, 2021). Implementing E-Learning from levels 1, 2, 3 and now at level 4 with online time reaches 100%.

Table 4. Summary of the process of implementing E-Learning 2017 – 2022

Stage	School Year	% Online	Model	Virtual Classroom	LMS						LCMS				
					Assigment	Quiz	Grade Caculator	DashBoard	Attedance	Rich Media	Video	H5P	Docs	Slide
Stage 1	2017 -2018	0%	General		X								X	X
Stage 2	2018 - 2019	20%	Blended classroom	X	X	X	X		X	X			X	X
Stage 3	2019 - 2020	50 – 100%	Flipped classroom	X	X	X	X	X	X	X	X		X	X
Stage 4	2021 - 2022	0 – 100%	Flipped Learning Comprehensive	x/0	X	X	X	X	X	X	X	X	X	X

Now, the course has finished developing its resources vault, study methodologies, and online learning evaluation process. Along with digital transformation, many types are implemented too: traditional, mixed, and flip. Besides that, we also actively research ways to improve the user experience and utilities of the website. The statistical survey at stage 4 interviewed 12144 students from stage 2021- 2022.

Table 5. Statistical data on students' engagement and academic achievements during the implementation phases of E-Learning

School year	Semester	Student	View	Submit
2017 - 2018	SEM. 1	2,152	43,970	-
	SEM. 2	2,233	40,986	-
2018 - 2019	SEM. 1	4,591	180,050	10,216
	SEM. 2	7,417	300,083	16,327
2019 - 2020	SEM. 1	5,369	1,305,197	88,285
	SEM. 2	8,882	1,953,839	136,424
2021 - 2022	SEM. 1	7,100	1,707,000	127,800
	SEM. 2	4,783	1,987,852	100,880

The table survey has data on the view, submission rate, and completion rate of students from stage 4, the year 2021 - 2022, combined with four implementing phases of 4 school years. The submission rate mostly does not change compared to stage 3. However, the view rate increases by 73% per student and the completion rate still average at around 89%. This is the first step of our digital transformation process to support offline and online teaching.
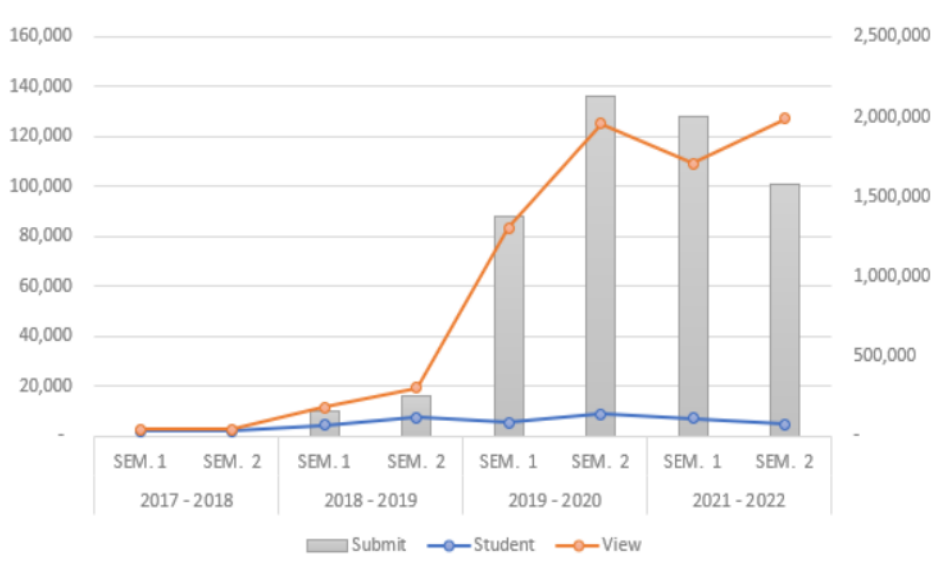
Figure 6. Visualisation of Statistics of our E-Learning Course through the academic years from 2017 to 2022

During the implementation process, we continuously take data on the amount of student interaction in semester two compared with the amount of interaction in semester 1. After that, we evaluate the growth in student learning activities on the LMS Moodle. Through the data table of views for each module on the Elearning site, we can measure the growth in attracting students interested in each digital content provided
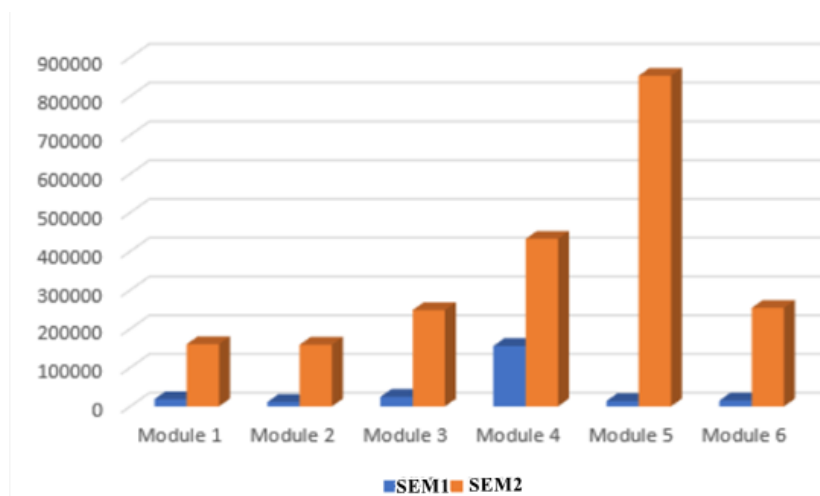

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Figure 7. Interactive comparison chart between the 1st and 2nd semesters of the academic year 2021 -2022

In addition, the department is also very interested in the number of students participating in each module. We survey the percentage of students participating in the course who are interested in digital content. The collection of data on the number of students participating and

completing the required content helps the teachers have a strategy to improve teaching activities in the following semesters.
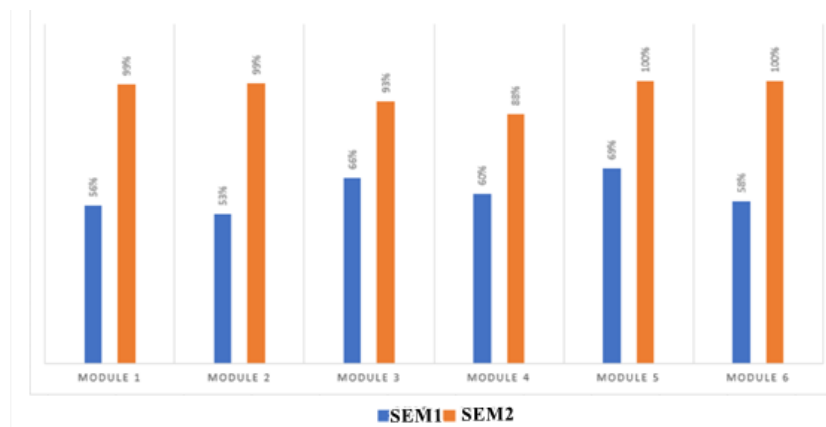

Figure 8 Graph comparing the number of students participating between the 1st and 2nd semesters of the academic year 2021 -2022

According to statistics, the number of students participating in learning modules in semester 2 reached an average of 97%, an increase of 60% compared to semester 1 in the same academic year, 2021-2022. We also continued to collect statistics on how long students spent doing academic activities over the two semesters. The unit is used to measure time in minutes. It is found that the student's learning time with training methods, content and organization of digital content in semester 2, the duration of student learning increased by 124% compared to that of learning. Term 1 in the same academic year 2021-2022.
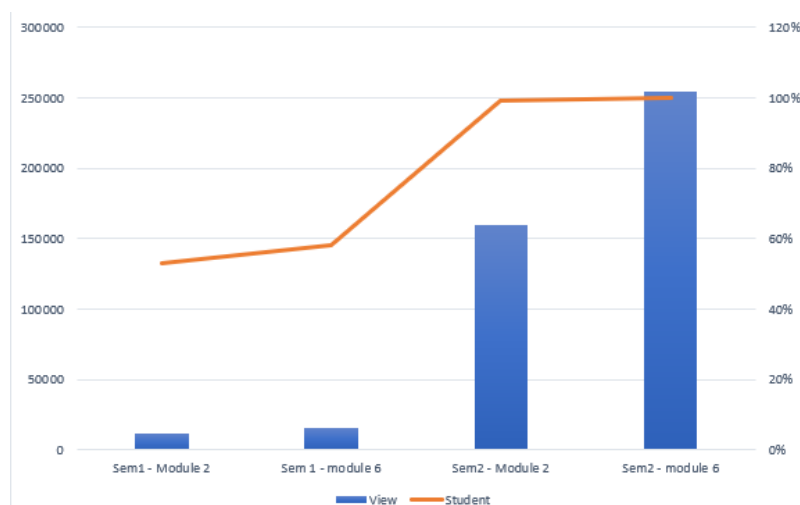

Figure 9. Comparison chart of view growth and rate of students participating in interactive videos at HK2

In the 2nd semester, the review unit implemented interactive videos to get live scores. These videos allow students to do it as many times as they want. They will get points at the learner's

last burst, which has attracted the number of students participating in completing the learning content with interactive videos at 2: Module 2 and Module 6.
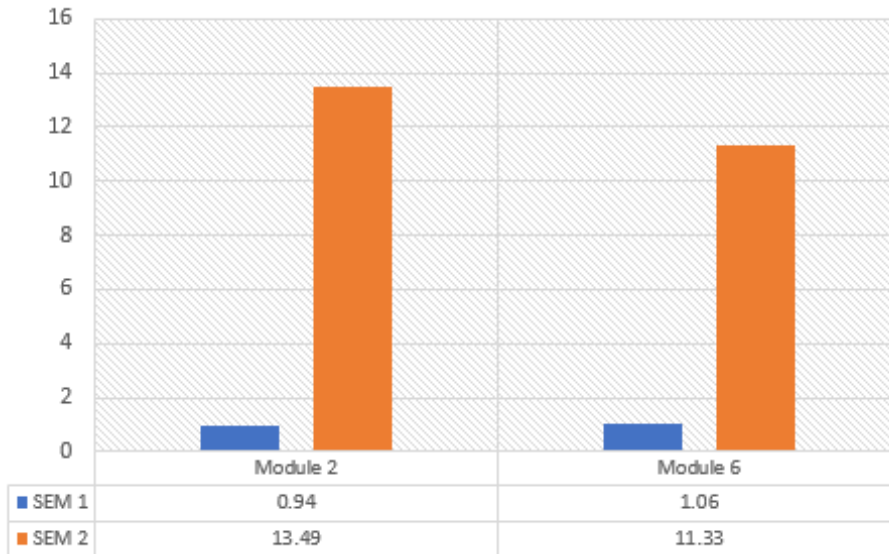

Figure 10. Number of students studying for Modules 2 and Module 6

In addition, we also measure the number of student interactions at each module using interactive videos and conventions for students to do an unlimited number of times and record the results at the student's final effort. Realizing that it is effective in attracting students to study and practice more, specifically, in Module 2, the number of interactions increases 12.55 times and Module 6 increases 10.27 times per student participating in learning.
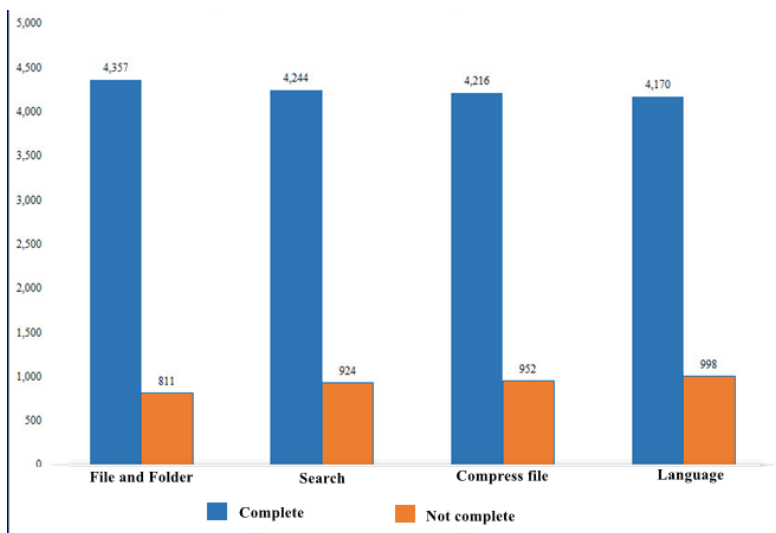

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Figure 11. Statistical chart of the number of actively completing Module 2

In the process of implementing the two modules using interactive videos, there is a difference between the teaching methods in both modules. Specifically for Module 2, this is a model of classroom organization with direct interaction with students during direct class. Statistics are performed on all four interactive videos of the module.
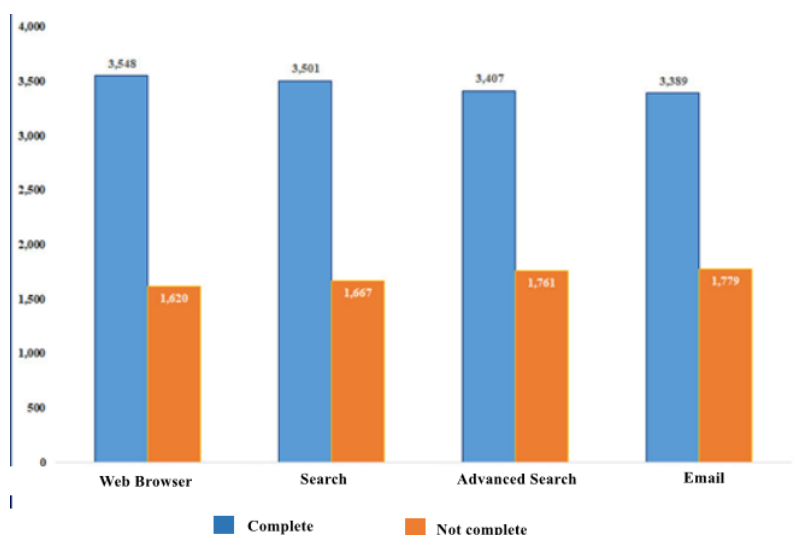
Figure 12 Statistical chart of the number of actively completing module content 6

Module 6 is implemented through Elearning sessions at the request of the school. Initially, we recognize the active initiative of students in completing Module 2 content better than students completing the content themselves. Module 6.

Conclusion and recommendation

During the research and implementation of the E-Learning for General Informatics process, we notice that different courses and industries will require different amounts of online time. Based on the different needs for online time, lecturers can pick the appropriate teaching methods ranging from traditional classrooms with E-Learning support in exercises, testing, communication, and advanced study activities to complete online or offline classes. Regardless of methods, the most important factor remains in the cooperation between learners and teachers and requires both perspectives in planning, organizing, support, and evaluating. Researching and implementing Benjamin S. Bloom's (Bloom, 1956) levels of cognition in building curriculums, videos, interactive videos, lecture slides, rules, and question banks to aid students with learning. Furthermore, adequate attention also must be paid to designing a user-friendly interface and creating study content: videos, interactive videos (H5P), rich media, question banks, and exercises.

Despite advantages and successes when implementing E-Learning with the support of departments and policies of the headmaster of VanLang University, courses also face difficulty when students lack proactivity and engagement. This creates a lot of difficulties in planning, organizing, and teaching. There need to be extracurricular classes to equip students with online learning skills, research skills, and studying in college. There needs to be precision in identifying targets for education so that study methods and technologies can be selected accurately and appropriately. Also, it is crucial to emphasize the communication between learners and teachers, study methods, approach, planning, building study roadmap and mutual agreements between students and lecturers. I sincerely thank Van Lang University for enabling us to implement the online teaching system.

Acknowledgments

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