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Exploring the Impact of Synchronous, Asynchronous, and Bichronous Online Learning Modes on EFL Students' Self-Regulated and Perceived English Language Learning

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Abstract

The aim of this mixed method study was to investigate the influences of synchronous, asynchronous, and bichronous learning modes on students' self-regulated and perceived learning in learning English language online. The influential differences among modes were also explored. Three intact groups of first year non-majored undergraduate university students (N = 142) enrolling in the online Foundation English course at a public university in Thailand were assigned to the researcher as the participants of the study. Three different learning modes were appointed randomly to three different groups of students; synchronous (n = 53), asynchronous (n = 42), and bichronous (n = 47) online learning modes over a 5-week of 12-week period. After that, the primary synchronous online learning mode preferred by the university resumed for asynchronous and bichronous learning. As for synchronous learning, the instruction remained the same as it already focused on real-time communication. The Online Self-Regulated English Language Learning Questionnaire (OSELLQ), the Cognitive, Affective, and Psychomotor (CAP) perceived learning scale, and the learning diary were used to collect data. The results revealed that each mode both uniquely promoted and obstructed participants in self-regulated and perceived English language learning, by providing a specific opportunity for the participants to self-control their learning with an expectation of the participants-modes compatibility. This expectation led to a varied level of perceived English language learning in different learning modes.

INTRODUCTION AND LITERATURE REVIEW

A significant growth in online learning has now become prevalent around the world and across all academic disciplines. Against a backdrop of unrivaled changes, the sophistication of technology and the extensive use of the internet has drawn more and more students to enroll in online courses every year. Furthermore, today, the outbreak of Coronavirus (COVID-19) pandemic has disrupted education around the globe, the students were and are affected by the lockdown, social distancing policy, and the prolonged closure of education institutions. In response, schools and university switched from face-to-face to online learning in order to provide the

educational continuity to students. Indeed, online learning could become the main medium in education by 2025 (Palvia et al., 2018).

Since the restrictions of the Covid-19 pandemic have led to all university courses in all subjects to take place online, an understanding of online learning to support and facilitate student's learning process is crucial especially in online language learning where most educators and students are immersed in supporting and undertaking language learning drawing on various digital technology tools to create an interactive and student-centered learning environment (Emke et al., 2010). To respond to the new language learning paradigm and the current growth in online courses, several modes of online learning have been proposed including synchronous, asynchronous, and a blend of the synchronous and asynchronous or bichronous communication (Martin et al., 2020).

The synchronous online learning mode offers real-time communication, which focuses on interaction and real-time communication through the use of video conferencing, chat rooms, etc. (Branon & Essex, 2001; Moallem, 2015). McBrien et al. (2009) state that the nature of the synchronous learning mode can minimize the distance in learning online and help students to feel more engaged and motivated in the class.

The asynchronous online learning mode, where time and space are not a condition, is usually facilitated by e-mails, discussion boards, or recorded videos. Accessibility anywhere and anytime and self-paced learning have been defined as the outstanding features of the asynchronous learning mode (Chen & Liu, 2020; Keramidas, 2012). Students are not bound to the scheduling as with the synchronous learning environment. Students who take part in asynchronous communication in learning usually have more time to think and plan since an immediate response is not required leading to more clarification and in-depth understanding of the learning content (Abuseileek & Qatawneh, 2013).

Without contradiction, both synchronous and asynchronous communication come with great advantages as well as disadvantages. As a result, a blend of the two learning modes of communication or bichronous learning mode is proposed to fill in what the alternative communication channel lacks and to provide a richer learning experience for students (Martin et al., 2020). Bichronous mode involves a combination of synchronous and asynchronous online learning modes. Through bichronous mode, the students could work at their own pace through the asynchronous part and feel more engaged via the synchronous class. The amount of time spent on either synchronous or asynchronous learning depends on the course's purposes.

In an online learning environment, learning online demands a great responsibility from students to control their learning process. Students are required to plan their study, manage their time, and decide how to engage with course content efficiently (Wang et al., 2013). As such, self-regulated learning plays a key role in taking control of one's learning and supporting students to autonomously and actively engage in the learning process (Bol & Garner, 2011; Kara et al., 2020). Barnard et al. (2009) define six aspects of self-regulatory online learning skills that contribute to better self-regulation in any learning online, involving setting the learning goal, structuring learning environment, performing task strategies, managing learning time, seeking help in learning, and evaluating self-learning aspects.

Many studies have been conducted to investigate self-regulated learning in an online learning environment (Broadbent, 2017; Cho & Shen, 2013), several of which claim that self-regulated learning relates to a positive learning experiences, high learning engagement, and effective learning processes. Accordingly, successful students in online learning are students who are able to strongly utilize self-regulation in their learning (Sun & Rueda, 2012). Such students are more capable of self-determining in order to become actively engaged in learning, in areas such as planning their study, reviewing learned materials, or setting their learning goals, compared to students with a weak self-regulated learning process (Kizilcec et al., 2017).

However, even though some linkages between self-regulated learning and learning quality have been presented, there are still some hesitations as to whether self-regulated learning can be transferred across disciplines. Pintrich (2004) claims that self-regulated learning depends on the learning context in which the learning takes place. This belief assumes that self-regulatory skill is context specific and could not be transferred to other subject domains. Conversely, others claim that once students are aware of their learning process, they can overcome the contextual differences and apply this self-regulated learning ability to other areas (Zimmerman & Martinez-Pons, 1990). These skills are internalized, which could be adapted and adjusted to the target contexts. Furthermore, there is also a viewpoint which suggests that there are only some general features of self-regulated learning that are constant across subjects with some features that are unable to cross over (Hrbácková & Hladík, 2011).

Apart from how students learn, what students learn in class should be taken into consideration as the actual content of students' learning is the key product for educators and institutions to make impactful decisions related to the development of the courses. Since the learning environment relating to physical settings, educational approaches, and cultural contexts, determines how students learn (AI-Harthi, 2010), what students themselves perceive to be learning within different learning contexts are also being influenced.

Perceived learning refers to the students' own beliefs towards the learning process (Caspi & Blau, 2011). It could be said that perceived learning is the students' self-learning evaluation or the students' self-report of knowledge gained (Kara et al., 2020; Porat et al., 2018). Perceived learning is considered to be an important component in predicting learning outcomes, an indicator of students' satisfaction, and willingness to engage in learning (Karns, 2005). There are basically three domains of learning involving perceived learning, which are cognitive, affective, and psychomotor. The cognitive domain refers to knowledge and intellectual abilities (Bloom et al., 1956). The affective domain involves with the attitudes toward the learning (Kearney, 1994). Lastly, the psychomotor domains relates to the skill development (Simpson, 1974). To construct and deliver effective lessons, instructors should consider these domains as learning goals to benefit students' learning process and outcome (Bloom et al., 1956; Rovai et al., 2009).

In summary, how students self-regulate and perceive their English language learning in different online learning modes is crucial for investigation in order to provide a launch pad for English language instructors to understand how students learn languages through different online learning modes and for institutions to review the areas that need improvement for the

development of stronger online language learning courses in the future. The purposes of this study are; (i) to investigate how students' self-regulated learning is influenced by synchronous, asynchronous, and bichronous online learning modes and (ii) to investigate how students' perceived English language learning is influenced by synchronous, asynchronous, and bichronous online learning modes.

RESEARCH METHODOLOGY

Participants

The three intact groups in three different sections of first year non-majored undergraduate university students (*N* = 142) enrolling in the online Foundation English course, which was designed for Intermediate level, at a public university in Thailand were assigned to the researcher as the participants of the study. Three different learning modes were appointed randomly to different groups of students; synchronous (*n* = 53), asynchronous (*n* = 42), and bichronous (*n* = 47) online learning modes. The actual proficiency level of participants varied and participants had not taken a university online course before.

Settings

The three groups in three different sections started their learning based on the assigned modes at the beginning of the semester in the session over a 5-week of a 12-week period in the Foundation English course covering ten classes of one and a half hours twice a week, totaling three hours per week. After a 5-week period, the primary synchronous online learning mode preferred by the university resumed for asynchronous and bichronous modes. As for synchronous online learning mode, the instruction remained the same as it already focused on synchronous learning. The course was taught by the researcher in all three delivery modes at a different time depending on each section's learning schedule.

Besides the differing online learning modes, all three groups used the same course syllabus of the online Foundation English course, namely to enable students to use English to effectively communicate in daily and professional life in the four skills of listening, speaking, reading, and writing. All modes followed the coursebook teaching steps. The one and a half hours class started with pre-task, which aimed to raise the participants' interests and background knowledge toward the main task by using pictures and questions for the participants to think about. Then, the main tasks depending on the coursebook's unit were taught. Lastly, post-task activities were carried out by providing questions relating to the unit for discussions. Chapter One (Time) and Chapter Two (Learning) of the coursebook were selected as the focus of this research, along with two projects encouraging independent (Week 2) and collaborative work (Week 4). An online orientation was held to cover a thorough nature of each group and the participants were asked for a consent to participate in this study at the beginning of the semester. The following is the descriptions of each group.

a) In the synchronous group, the participants met the instructor with real-time

communication twice a week. Only the course syllabus and course book were provided to the participants at the beginning. All the handouts and assignments were given as the lesson began to create a sense of instructor-students interaction. If needed, participants could contact instructors via online call or live chat.

b) In the asynchronous group, the participants' learning relied entirely on the instructor's recorded video without the instructor present. Participants could access all the recorded videos and other class materials including handouts, assignments, and practice problems and answers at the beginning of the session. Participants could contact instructors through email and messages via the online platform only.

c) In the bichronous group, the participants' weekly class was divided into synchronous and asynchronous online learning modes. The participants learned through real-time communication in synchronous mode. In asynchronous mode, the instructor allowed the participants to learn at their own pace with unlimited learning time through the recorded video. The participants were able to contact the instructor in synchronous and asynchronous methods such as online call, live chat, email and messages via the online platform only.

Research instruments

There were three main instruments used in this study; the Online Self-Regulated English Language Learning Questionnaire (OSELLQ), the Cognitive, Affective, and Psychomotor (CAP) Perceived Learning Scale, and the learning diary. Each instrument was validated by three experts in the field of language teaching and assessment. All of the questionnaires and guided learning diary's questions were written in Thai and in English in order to prevent any language barriers. Both languages were needed because some English technical terms were used during the course orientation. By omitting the terms that were used in English would cause confusion and may distort the items' aims in the questionnaires.

The first instrument was the Online Self-Regulated English Language Learning Questionnaire (OSELLQ). The OSELLQ was adapted from Online Self-Regulated Learning Questionnaire (OSLQ) (Barnard et al., 2009), which was specifically designed to measure students' self-regulated learning in the online environment and the measurement scale of self-regulation for language learning (Tseng et al., 2017). The measurement scale of self-regulation for language learning was developed to assess English as a Foreign Language Learners' self-regulatory skill in English language learning course. There were 24 items in the OSELLQ with a 5-point Likert scale ranging from 'strongly disagree' (1) to 'strongly agree' (5). The questionnaire was divided into six aspects of goal setting, environment structuring, task strategies, time management, help-seeking, and self-evaluation.

In the present research, the OSELLQ questionnaire employed a 5-poing Likert scale for the midpoint benefit. By having a midpoint, the participants would not feel force to express opinion in one way or another (Croasmun & Ostrom, 2011). This aimed to capture the participants' response which might not experience the supporting or obstructing in the self-regulated

learning process from the online learning modes. However, the term 'midpoint' itself could be interpreted differently from one participant to another. This was the reason why the qualitative method was used in this paper to provide an in-depth information.

Secondly, the Cognitive, Affective, and Psychomotor (CAP) Perceived Learning Scale (Rovai et al., 2009) was the research instrument used to measure participants' perceived English language learning. There were 9 questions employing a 6-point Likert scale, with scale measures from 'not at all' (1) to 'very much so' (6). A higher CAP perceived learning summative score conveyed a higher perception of learning from 0-54 in total and 0-18 for each cognitive, affective, and psychomotor learning domain subscale. Only a minor language revision to make CAP Perceived Learning Scale more suitable for online English language learning was made without intervening the main purposes or the scores' calculation criteria.

The last instrument employed was the learning diary developed to collect in-depth information on how participants experienced each session and each class. Guidance questions in English and Thai concerning the learning process, perceived English language learning, online language learning, challenges, and suggestions were included. The participants could write a diary in either English or Thai.

Data collection and analysis

To investigate the participants' self-regulated and perceived English language learning, the participants proceeded to learn according to the assigned modes. During the 5-week period, the learning diary was given to the participants to record their learning experiences. At the end of each session, the OSELLQ and the CAP perceived learning scale were given to the participants to explore the online self-regulated English language learning experiences and perceived English language learning performances.

The obtained data from the OSELLQ was first analyzed by means of descriptive statistics being mean scores and standard deviation. The interval between each of the mean scores range is about 0.79 for a uniform difference and to avoid bias in a sense of the difference among intervals (Pimentel, 2010). The mean score range and corresponding response choices are shown as follows:

Mean Score Range	Item Description
1.00-1.80	**Strongly Disagree**
1.81-2.60	**Disagree**
2.61-3.40	**Neutral/Uncertain**
3.41-4.20	**Agree**
4.21-5.00	**Strongly Agree**

Then, scores of the OSELLQ were analyzed using a One-Way Analysis of Variance (ANOVA) in order to determine the differences of participants' self-regulated learning among online learning modes. As for perceived English language learning, the CAP perceived learning scale was analyzed using descriptive statistics as instructed by Rovai et al. (2009) along with a One-Way

ANOVA to explore the differences of participants' perceived English language learning between online learning modes. Lastly, a content analysis of the learning diary was employed to complement all the quantitative data.

FINDINGS

The findings and discussion of this research are presented in two sections; the influences of the online learning modes on self-regulated learning and perceived English language learning. Each section comprises two subsections, which are the quantitative qualitative findings.

The influences of the online learning modes on self-regulated learning

Quantitative findings

Statistical analysis from the OSELLQ at the end of the session revealed that the overall self-regulated learning mean score of all three modes (synchronous mode, *M* = 3.74, *SD* = 0.51, asynchronous mode, *M* = 4.03, *SD* = 0.41, bichronous mode, *M* = 3.89, *SD* = 0.44) fell in the response choice of agree. This may stipulate that the participants well displayed self-regulation in an online English language learning. The difference between the participants in each mode was the degree of participants' self-regulatory skills. The asynchronous mode received the highest mean score under the agree category of response choice, indicating that the participants in the asynchronous mode may better self-regulate their learning than in the synchronous and bichronous modes, most notably in the goal setting (*M* = 4.64, *SD* = 0.40), environment structuring (*M* = 4.68, *SD* = 0.28), time management (*M* = 3.94, *SD* = 0.87), and help-seeking (*M* = 4.20, *SD* = 0.38) aspects as shown in Table 1.

Table 1

Descriptive statistical results of participants' self-regulated learning after the session

Items	Synchronous		Asynchronous		Bichronous	
	Mean	SD	Mean	SD	Mean	SD
Goal Setting	4.45	0.62	4.64	0.40	4.24	0.70
Environment Structuring	3.83	0.85	4.68	0.28	4.01	0.75
Task Strategies	3.36	0.67	3.43	0.67	3.59	0.33
Time Management	3.81	0.33	3.94	0.87	3.90	0.71
Helping-seeking	3.59	0.68	4.20	0.38	3.79	0.65
Self-evaluation	3.42	0.69	3.40	0.61	3.51	0.38
Overall Self-Regulated Learning	**3.74**	**0.51**	**4.03**	**0.41**	**3.89**	**0.44**

To explore the participants' self-regulated learning differences affected by different online learning modes, the OSELLQ's data was analyzed with a One-Way ANOVA together with post-hoc analysis. Results gained from the analysis of Table 2 showed that the different online learning modes had an impact on the overall participants' self-regulation with statistical significance, $F(2, 139) = 3.98$, $p = 0.02$. When probing into the collected data, a statistical significance was noticed in each self-regulated learning skill. This obtained quantitative data could indicate that the participants had utilized different self-regulatory skills in experiencing

learning in each online learning mode except for the self-evaluation aspect.

Table 2

ANOVA results of participants' self-regulated learning

Item		Sum of Squares	df	Mean Square	F	Sig.
Goal Setting	Between group	5.45	2	2.72	7.78	*.00**
	Within group	48.65	139	0.35		
	Total	54.10	141			
Environment Structuring	Between group	18.01	2	9.00	18.4	*.00**
	Within group	68.01	139	0.48	1	
	Total	86.03	141			
Task Strategies	Between group	32.32	2	16.16	47.1	*.00**
	Within group	47.63	139	0.34	5	
	Total	79.95	141			
Time Management	Between group	17.07	2	8.54	19.4	*.00**
	Within group	60.99	139	0.43	6	
	Total	78.07	141			
Help-seeking	Between group	8.79	2	4.39	12.2	*.00**
	Within group	49.88	139	0.35	5	
	Total	58.68	141			
Self -evaluation	Between group	2.16	2	1.08	2.41	*.09*
	Within group	62.36	139	0.44		
	Total	64.53	141			
Overall Self-regulated Learning	**Between group**	**1.77**	**2**	**0.88**	**3.98**	***.02****
	Within group	**31.01**	**139**	**0.22**		
	Total	**32.79**	**141**			

*$p \leq 0.05$

In Table 3, the post-hoc test was used to search for the specific differences of how the participants self-regulated their learning experiences between online learning modes. A statistical significance was observed in most pairs and in most aspects except for the self-evaluation. No pattern was observed in how the participants self-regulated their learning differently in different online learning modes.

Under the goal setting aspect, a statistical significance was found in two pairs of the synchronous and bichronous mode ($p = 0.00$), and the asynchronous and bichronous mode ($p = 0.02$). Similar to the goal setting aspect, task strategies skill displayed the same statistical significance pairs, which was the synchronous and bichronous mode ($p = 0.00$), and the asynchronous and bichronous mode ($p = 0.00$). As for the environment structuring and help-seeking aspects, both of the findings demonstrated the statistical significance between synchronous and asynchronous modes ($p = 0.00$), and asynchronous and bichronous modes ($p = 0.00$). Lastly, synchronous and asynchronous modes ($p = 0.00$), and synchronous and bichronous modes ($p = 0.00$) were presented the difference in managing their learning time with statistical significance.

Table 3

A post-hoc test result used to compare the specific differences of the participants' self-regulated learning in each online learning mode with one another (synchronous with asynchronous and bichronous, asynchronous with synchronous and bichronous, and bichronous with synchronous and asynchronous)

Goal Setting	**Synchronous**	**Asynchronous**	**Bichronous**
	Sig.	**Sig.**	**Sig.**
Synchronous Mode	-	0.76	*.00**
Asynchronous Mode	-	-	*.02**
Bichronous Mode	-	-	-
Environment Structuring	**Synchronous**	**Asynchronous**	**Bichronous**
	Sig.	**Sig.**	**Sig.**
Synchronous Mode	-	*.00**	0.22
Asynchronous Mode	-	-	*.00**
Bichronous Mode	-	-	-
Task Strategies	**Synchronous**	**Asynchronous**	**Bichronous**
	Sig.	**Sig.**	**Sig.**
Synchronous Mode	-	0.58	*.00**
Asynchronous Mode	-	-	*.00**
Bichronous Mode	-	-	-
Time Management	**Synchronous**	**Asynchronous**	**Bichronous**
	Sig.	**Sig.**	**Sig.**
Synchronous Mode	-	*.00**	*.00**
Asynchronous Mode	-	-	0.79
Bichronous Mode	-	-	-
Help-seeking	**Synchronous**	**Asynchronous**	**Bichronous**
	Sig.	**Sig.**	**Sig.**
Synchronous Mode	-	*.00**	0.09
Asynchronous Mode	-	-	*.00**
Bichronous Mode	-	-	-
Self-evaluation	**Synchronous**	**Asynchronous**	**Bichronous**
	Sig.	**Sig.**	**Sig.**
Synchronous Mode	-	0.38	0.16
Asynchronous Mode	-	-	0.53
Bichronous Mode	-	-	-
Overall Self-regulated Learning	**Synchronous**	**Asynchronous**	**Bichronous**
	Sig.	**Sig.**	**Sig.**
Synchronous Mode	-	0.11	*.00**
Asynchronous Mode	-	-	0.26
Bichronous Mode	-	-	-

*$p \leq 0.05$

Qualitative findings

Aside from the questionnaire scores, the influences of the online learning modes on participants' self-regulated learning were highlighted on analysis of the learning diaries. Following is the participants' elaboration of all three modes upon each self-regulated learning aspects with some examples of the participants' responses.

The goal setting aspect

In asynchronous learning mode, without the presence of the instructor or their peers to provide

guided instructions, participants found the need to independently rely more on themselves to pace their learning in following the course syllabus, course content, and course assignments. These conditions, in turn, led to the participants having to find the need to set their learning goals in order to learn online as it helped them to realize and determine what they had to complete. Without this recourse to independent goal setting, the participants would lose their focus and motivation while learning (Dotson, 2016), as one participant shared:

> *When studying through a recorded video and by yourself, I need to set the goal very clear what I have to do. Otherwise, I would lose my concentration and direction in the study. (Participant 11, Asynchronous mode, Learning diary class 4)*

Conversely, the necessity of goal setting was not seen in the results of the synchronous and bichronous modes. The participants did not acknowledge the significance and necessity of goal setting. Most participants relied more on the instructor's presence to help them with the learning goals. Zhang (2013) states that Asian students generally view instructors as authoritative figures who are in power and in control of teaching and learning. The participants in the study, therefore, did not deem it necessary to set their own goals when the instructor was there to instruct and direct participants towards the finishing line.

The environment structuring aspect

A better control of the learning environment was witnessed with the asynchronous participants. They seemed to be more efficiently controlled their learning space compared to other online learning modes. The asynchronous participants could choose to learn where there were less distractions and suitable for their learning styles. Comparing to the asynchronous mode, the synchronous participants reported that, with the fixed schedule of learning, they could not control their learning effectively. There were many distractors in the learning space that the participants could not control at the time of learning such as house chore, construction noise, and etc.

> *It was very difficult to manage my learning space to learn online because I did not have a suitable learning environment during the day. My mom was selling things in front of the house and there was a construction site nearby. I could not concentrate when I was studying online at home but I did not have other places to go. (Participant 15, Synchronous mode, Learning diary class 7)*

As for the bichronous mode, there were several mixed statements from the participants. One reason of this feeling towards the learning environment management could be because the bichronous mode did not go to the extreme of either synchronous or asynchronous environment management aspect. They participants did not fully acknowledge the advantage of settling an authentic learning landscape or settling their own place for learning, as described by one participant.

> *"It was very confusing for me to learn in a mixed mode. In real time mode, I needed to properly set a place that was good for my learning once a week. Then, when I learned*

from the video, I could learn anywhere. I preferred only one style, which I could truly focus and settled my learning space." (Participant 12, Bichronous mode, Learning diary class 5)

The time management aspect

In terms of time management, asynchronous participants seemed to manage their time more effectively compared to other online learning modes owing to the advantage of being able to learn anytime. The participants could learn in the early morning when their concentration was at its strongest. The asynchronous mode enabled participants to manage their time to suit their schedules and not the other way around.

On the other hand, the synchronous participants' learning mode required real-time communication with a fixed schedule, which drove the participants to feel as if they were being forced to learn when they were not ready. This incompatible schedule influenced participants in terms of limited concentration during, and motivation for, the lessons.

"I was not ready to learn when I had to because I had to finish another class first. I was so tired that I could not concentrate in class. I did not want to learn when I was tired." (Participant 2, Synchronous mode, Learning diary class 3)

As for the bichronous mode, the participants revealed that the time-bound and time-free sessions during the same week was not appealing for them. With an aim to provide well-rounded experiences for participants and a strong sense of instruction-student interaction hoping to minimize the loneliness of online learning, the participants conversely reported the opposite as shown in the following excerpt:

It is very confusing for me to learn with instructor one day and with video the next day. This makes it more difficult for me to adapt to learning online. Although I can interact with the instructor the next class, I still cannot adjust the learning strategy from video to real life interaction. (Participants 40, Bichronous mode, Learning diary class 8)

The task strategies aspect

The nature of learning modes also influenced the learning strategies that participants select to cope with the language tasks and assignments. With a combination of synchronous and asynchronous characteristics, bichronous participants reported using various strategies in completing the assignments and learning in class.

When I learned from the video, I would adjust the speed of the video to be slower so I could slowly take the information in. I usually played the video many times. Whenever there were distractors, I would pause the video and played it again when I was ready. However, in real-time communication, I could not do that. I needed to concentrate more and took the note while the instructor was teaching. (Participants 33, Bichronous mode, Learning diary class 6)

Most synchronous participants leaned on note taking strategies as they found it helpful when what instructors taught could not be repeated, while asynchronous participants employed read aloud strategies to tackle all the recorded lessons, sharing their reasoning that by hearing their own voices read the content again was similar to having an instructor to guide them. However, these aforementioned strategies might benefit the participants greatly when the promoted strategies and the participants' learning strategies are matched. This perfect matching between intended strategies and preferred strategies might not always exist as some participants reported challenges in learning modes, as illustrated below:

> *When I ask my friend how she feels about studying language online, she told me that she always takes note of what the instructor said. However, I am not good at note taking. It is better for me to study by myself. (Participants 43, Synchronous mode, Learning diary class 9)*

Help-seeking aspect

Concerning the help-seeking aspect, since all three modes regularly received assistance from instructors, peers, and more knowledgeable person from both inside and outside class, help-seeking was not an issue as illustrated below.

One synchronous participant shared:

> *I could always ask my instructor in real time class when I did not understand something. (Participants 35, Synchronous mode, Learning diary class 6)*

One asynchronous participant described:

> *Although I was studying from the video, I could still find an answer when I stuck at somethings. I would write an email to an instructor. She answered my email every time. If I needed an instance answer, I would talk to my friends. (Participants 28, Asynchronous mode, Learning diary class 10)*

One bichronous participant explained:

> *If I had some questions, I would make a list and asked my instructor on the synchronous class and review what I have learned on the asynchronous class. If I could not ask my friends or my instructors at the moment, I would ask my sister who learned this course before to help me. (Participants 17, Bichronous mode, Learning diary class 9)*

Self-evaluation aspect

The participants in all three modes found that the learning diary helped them with evaluating what they learned, reflecting on the learning process, and knowing their strengths and weaknesses in class. Not only did the learning diary help with self-evaluation, but also with enhancing self-regulated learning. The study of Arsal (2010) concerning utilizing a diary as a

means to enhance self-regulated strategies reaffirms these findings. This study claims that supporting activities are necessary to help participants to better self-regulate their learning. When the participants did not receive the appropriate self-regulated learning support, they became less efficient in regulating their own learning and fail to understand the lessons (Azevedo & Hadwin, 2005), as demonstrated in the following sentiment:

> *When I wanted to know what I had done and reviewed what I have learned, I would come back to look at the diary and saw what I have written. I would know what I had to do more and what I have already done best. (Participant 3, Asynchronous mode, Learning diary class 7)*

Based on the participants' self-regulated learning quantitative and qualitative findings, the synchronous participants did not seem to value the goal setting aspect as there was an instructor to help them direct their learning. With this real-time communication quality, it made the participants feel less oblige in controlling over time and environment management. While learning in synchronous mode, note taking was considered an effective strategy for the participants to follow the lessons in class. The asynchronous participants viewed the goal setting as an essential strategy because more responsibility to plan their learning, and maintain the level of commitments were needed when the instructor was not present and the minimum in interaction. The concept of anywhere and anytime also emphasized the participants to have a strong self-control in learning because not only the goal the participants need to well set, but also finding a study-time-environment appropriateness. The asynchronous participants' task strategies mostly fell into the read aloud strategies. The participants reported that by hearing their own voice could help them to understand the learning better. As for the bichronous mode, the findings suggested that the bichronous mode needed to be implanted more carefully. A blend of two modes was expected to provide richer experiences for participants where participants could manage their learning time as well as supplement their learning with applying what learned to real life interaction and social emotion. However, the superior experiences that the mode was intended to offer would go to waste when most aspects of the mode proved to be incompatible with how the participants preferred to self-regulate their learning.

Within all three modes, two skills showed similar results, which were help-seeking and self-evaluation. The participants in all three modes preferred asking for help from the instructor through private channels to avoid embarrassment in asking in front of their peers. Furthermore, the participants evaluated themselves through learning diary throughout the session. Therefore, the participants in all three modes claimed themselves to be equipped with a strong self-regulated learner in this area.

The influence of the online learning modes on perceived English language learning

Quantitative findings

In Table 4, the results gained from the CAP learning scale demonstrated that the overall mean score of the asynchronous mode was the highest (M = 33.83, SD = 3.13). The asynchronous learning mode promoted a high level of overall perceived English language learning specifically

in the cognitive or knowledge domain (*M* = 16.19, *SD* = 0.41); however, a hindrance in the affective or feeling domain (*M* = 9.40, *SD* = 1.69) was evident. On the other hand, the learning mode that best supported participants to engage with their emotion was the synchronous mode (*M* = 11.49, *SD* = 1.24). It could be said that asynchronous participants may perceived themselves with acquiring more knowledge, but less in a sense of interaction, while the synchronous participants felt more connected to class, less distance to the instructor and peers but also less in a sense of knowledge perceiving. As for the bichronous mode, the participants did not go in any direction.

Table 4

Descriptive statistics results of participants' perceived English language learning

Items	Synchronous		Asynchronous		Bichronous	
	Mean	SD	Mean	SD	Mean	SD
Cognitive	9.41	1.16	16.19	1.41	10.53	1.28
Affective	11.49	1.24	9.40	1.69	10.63	1.79
Psychomotor	7.28	2.06	8.23	2.26	8.25	2.36
Perceived English Language Learning	**28.18**	**2.68**	**33.83**	**3.13**	**29.41**	**3.49**

A One-Way ANOVA was performed to compare the three online learning modes on participants' perceived English language learning in Table 5. The results indicated that different online learning modes influenced how participants differently perceived their English language learning with statistical significance, $F(2, 139) = 36.36$, $p = 0.00$. On further examination of the findings, the post-hoc tests in Table 6 showed that there was a statistical significance in all pairs and in all domains. This may demonstrate that each mode had a potential to support or obstruct the participants to perceived their learning in their own way.

Table 5

ANOVA results of participants' perceived English language learning

Item		Sum of Squares	df	Mean Square	F	Sig.
Cognitive	Between groups	1099.91	2	549.95	333.75	*.00**
	Within group	229.046	139	1.64		
	Total	1328.96	141			
Affective	Between groups	1178.44	2	589.22	235.20	*.00**
	Within group	348.21	139	2.50		
	Total	1526.65	141			
Psychomotor	Between groups	98.46	2	49.23	9.95	*.00**
	Within group	687.31	139	4.94		
	Total	785.77	141			
Perceived English Language Learning	**Between groups**	**702.874**	**2**	**351.437**	**36.36**	***0.00****
	Within group	**1343.436**	**139**	**9.665**		
	Total	**2046.310**	**141**			

*$p \leq 0.05$

Table 6

A post-hoc test result used to compare the specific differences of the participants' perceived English language learning in each online learning mode with one another (synchronous with asynchronous and bichronous, asynchronous with synchronous and bichronous, and bichronous with synchronous and asynchronous)

Cognitive	**Synchronous**	**Asynchronous**	**Bichronous**
	Sig.	**Sig.**	**Sig.**
Synchronous Mode	-	*.00**	*.00**
Asynchronous Mode	-	-	*.00**
Bichronous Mode	-	-	-
Affective	**Synchronous**	**Asynchronous**	**Bichronous**
	Sig.	**Sig.**	**Sig.**
Synchronous Mode	-	*.00**	*.00**
Asynchronous Mode	-	-	*.00**
Bichronous Mode	-	-	-
Psychomotor	**Synchronous**	**Asynchronous**	**Bichronous**
	Sig.	**Sig.**	**Sig.**
Synchronous Mode	-	*.00**	*.02**
Asynchronous Mode	-	-	*.03**
Bichronous Mode	-	-	-
Overall Perceived Learning	**Synchronous**	**Asynchronous**	**Bichronous**
	Sig.	**Sig.**	**Sig.**
Synchronous Mode	-	*.01**	*.00**
Asynchronous Mode	-	-	*.00**
Bichronous Mode	-	-	-

*$p \leq 0.05$

Qualitative findings

Together with qualitative analysis employing the learning diary, an understanding of the perceived English language learning differences among online learning modes became apparent.

The cognitive domain

The asynchronous participants perceived themselves to acquire a lot of knowledge through the mode flexibility in time and place mode. They acquired more time to think, practice, and to synthesize what was learned especially listening skill, aspects which were reinforced in the following excerpts:

> *When I didn't understand some words in the listening skill video. I could pause the video and opened the dictionary. I had time to think before I continued watching the video. I thought I learned a lot from the video method. (Participant 1, Asynchronous mode, Learning diary class 10)*

On the contrary, the synchronous and bichronous participants reported that sometimes they could not follow the lessons. Once they were lost, they could not get back on track, as described by one participant.

> *Last week, I did not understand one part of the lesson. When I was going to ask, the*

instructor had already changed the topic. After that, I could not learn anything because I needed to understand that part to move on to the next exercise. (Participant 19, Synchronous mode, Learning diary class 10)

With real time and video at the same week, these two ways of learning required different learning strategy. When I was getting used to the strategies employ in learning real time, I needed to a new learning strategy in learning from a video. At the end, by switching back and forth, I did not feel like I learn anything. (Participant 23, Bichronous mode, Learning diary class 8)

The affective domain

With real-time interaction, synchronous participants acknowledged this authenticity and felt more connected to the class through the instructors' facial expressions and tone of voice leading to better language learning as described below:

I liked to learn language online in synchronous mode because I could see instructor face and real time voice. Because of that, I understood reading text more because when an instructor explained the text, it was not a robot-like voice. I could get an immediate feedback when I did not understand the reading. (Participant 9, Synchronous mode, Learning diary class 2)

However, this domain was the limitation of asynchronous learning mode as it confirmed when the participants stated that they felt lonely when they were studying with the video. They could not talk to anyone and sometimes it made them stress in learning language, as illustrated below:

When I could not connect or interact to anyone, I felt lonely. The first time I was studying with the video was fine but after a couple of weeks with all videos, I felt stress in learning. Language should not be learned through video. (Participant 33, Asynchronous mode, Learning diary class 6)

As for the bichronous mode, the participants seemed to be indifferent in this learning mode. They felt like they were doing a thing by halves. They rarely had a connection to the class or perceived themselves to be gaining a lot of knowledge from this mode, as described by one participant:

I did not feel connect to class although the learning was real-time communication. Moreover, I did not feel I could learn at my own pace with a video because when I started to learn with a video at my own pace, I still need to study real-time the next class. (Participant 14, Bichronous mode, Learning diary class 7)

The psychomotor domain

One of the challenges in learning a language online manifested itself all three learning modes.

The issue of difficulties in applying the vocabulary knowledge to other skills arose, as shown in the following sentiment:

> *I learned a lot of vocabulary but I did not have a chance to practise it. It was rather difficult to practise using the learned vocabulary online. I thought it would be better if we learned to use it in all skills face-to-face. (Participant 13, Bichronous mode, Learning diary class 5)*

Participants seemed to lack an opportunity to apply what was learned, especially vocabulary knowledge, and to practise it. Broadly speaking, all the modes were unable to support the participants to apply the vocabulary knowledge to other language skills. This problem could be found in reading, writing, and speaking, an indicator that the participants may perceived high learning in English knowledge, but low learning in terms of applying that learned knowledge to actual performance outcomes.

Simply put, the study highlights that all synchronous, asynchronous, and bichronous online learning modes provided a sense of learning in different ways. The learning environments are not proved to be equally effective across all modes. Instructors should take the strengths and advantages from each mode to maximize the students' learning potential by finding online activities or tasks which complement and boost learning strategies in helping participants to maximize their learning.

DISCUSSION

The purposes of this study are to investigate how different online learning modes of synchronous, asynchronous, and bichronous influence the participants' self-regulated learning and perceived English language learning. Based on the findings, several interesting points could be drawn to the discussion below.

Firstly, according to the study findings, the evidence in supporting previous research (Barnard-Brak et al., 2010; Pintrich, 2004; Zhao & Chen, 2016) claiming that self-regulated learning is guided and supported by the learning environment is unequivocal. The characteristics of different modes of the online learning environment play a vital part in promoting and obstructing how participants self-regulated their English language learning by providing specific opportunities for the participants to utilize or not utilize certain strategies. The findings have demonstrated that these opportunities could pose a hindrance to learning rather than provide learning advantages when the participants' preferences and mode's nature do not in agreement. On the contrary, once the compatibility is matched, several distinctive learning behaviors that could distinguish the participants in one online learning mode from another are apparent.

Secondly, according to the asynchronous mode's findings, the research entailed that the findings regarding the asynchronous learning mode are in congruence with previous research studies that demonstrate a concern over the role of social connection limitation in the deterioration of the participants' learning process (Moallem, 2015). In the present study, the participants

were equipped with a strong sense of language learning control, they were able to make suitable decisions in how to manage and be responsible for their language learning, factors which enabled them to overcome the asynchronous limitations although the asynchronous limitation still exists. Kang and You (2014) explain that when a sense of high-perceived academic control appears, the participants acknowledge their responsibility and are better able to self-regulate their online learning, leading to improved learning.

Thirdly, to further support the asynchronous findings, the concept SOLEs is worth mentioning. To elaborate, in this condition where learning is revolving around the unsupervised use of the Internet, the self-organized Learning Environments (SOLEs) (Mitra & Crawley, 2014) could partly be used to explain the study's contradictions of the concern over social connection limitation in deteriorating learning process. SOLEs is the learning mode, which allows students to self-organise in groups. Students would learn through a computer connected to the Internet with minimal support from the instructor. The instructors are challenged to become ultimate facilitator (Dolan et al., 2013). One explanation that could gain from SOLEs is students could learn efficiently without the instructor presence if they are self-determined and motivated. In this study, the asynchronous environment is set similarly to the SOLEs, which is to support the participants to self-paced, self-monitor, and self-evaluate their learning with a minimal help or direction from the instructor. Students are challenged to self-regulate and self-determine to learn. Thus, similarly, in a way, SOLEs is another evidence that could be used to support the findings.

Fourthly, one plausible explanation why the superior experiences that the bichronous mode was intended to offer go to waste with the participants could be elaborated by considering the demographic data of this study. Most participants, as first year students, were first fully experienced online learning. Seemingly, the combination of modes, which require a high level of autonomy, could not directly translate into delivering a richer experience for the participants in their actual learning. It could therefore be argued that the bichronous mode may not be as suitable for novice online language learning students in terms of self-regulating their learning as the flexibility of an online class appears appealing for some but not for all. The changing of the schedule breeds frustration and can lead to procrastination in their learning process. This provides substantial evidence that there is indeed a relationship between the learning environment and self-regulated learning skill.

Fifthly, in the world of globalization, the visions of lifelong learners and the autonomous learners have emerged to encounter the challenges of work after graduates. In response, many educational research has been conducted to search for a path or a pedagogy serve the purpose. Several terms related to autonomous learning were mentioned. Among these terms, self-directed learning (SDL) and self-regulated learning (SRL) have dominated the field of autonomous learning (Carre & Cosnefroy, 2011). Although the term SDL and SRL have often been used interchangeably in the literature. These two terms are not the same. However, the collaboration in these two terms to provide a fluid autonomous learning is needed (Linkous, 2020). SDL is defined as the process in which the students plans, implements, and evaluates personal learning (Brockett & Hiemstra, 1991). SDL learners make plan by determining their learning goals. SRL is a process of learning towards goal setting, environment structuring that the students self-

directed the process of learning (Linkous, 2020). SRL usually involves behavior and emotion regulation. Working in collaboration of SDL and SRL would lead to autonomous learning, which is the ability to take charge of one's own learning (Holec, 2001). Benson (2006)suggested that SDL included the element of self-regulation and motivation. In nature, SRL involves self-directed learning. Hence, in this study, the study is the starting point of building autonomous students.

A couple of common issues were found when probing into the data of all three sessions. The first is the internet barrier that was reported to indirectly influence how participants self-regulate their learning, resulting in a worsening of learning concentration and outcome. Chung et al. (2020) state that the delivery of online learning is one factor that affect students' learning experiences. This component is not related to students' self-determination in learning but surely affects the students' learning experiences. Secondly, the family role could be a notable factor in shaping the participants' learning process. Although there are many factors affecting the influences of family role on students' learning such as financial issues, culture, and etc, in this study, the focus was only on the family's influences, not the root cause of those influences. Yahaya et al. (2020) assert that parental academic support is essential in online self-regulated learning. Indeed, this can be witnessed in the study as the participants' academic participation was greatly challenged when parents were unaware of the nature of the online learning and challenges that the participants encountered. In contrast, when the family provided a structured and academically supportive environment within the home to help motivate participants to commit to their learning, individuals were able to appreciably regulate their learning better.

Lastly, the qualitative information gathered from the learning diary revealed the progress and changes in the participants' attitudes from the first class to the last. When the participants first learned online, they seemed to struggle with online language learning and did not feel connected to the class. Later, under the guidance of the instructor, the participants seemed to adapt and adjust themselves to the new learning environment. The participants' educational transition period from school to university could be partly responsible for this circumstance, where participants, for the first time, no longer had daily interactions with instructors to provide structure for when and for how long to engage in academic work. Once participants started to appropriately manage themselves and adapt to the new change in learning under instructor guidance and positive encouragement, they tended to develop more positive attitudes.

IMPLICATIONS

The findings in this study revealed that online learning modes have a supporting and obstructing impact on the participants' self-regulated learning and perceived English language learning. Thus, an online language learning course should be designed with the following recommendations in mind.

First, students come to class, not only an online English language course, with different backgrounds of prior knowledge and online learning language experiences. The adaptivity activities such as small group discussions to get to know the students' language level of proficiency and listen to students' expectations of learning language online, are advised.

Guidelines on how to self-regulate the online learning should be provided for the students to get accustomed to the new online language learning environment. Instructors could develop teaching materials on how to successfully learn online such as a video orientation or a reading about the importance of self-regulated learning in an online environment. Through these guided activities, students could find the transition period from face-to-face to online learning less burdensome.

Second, evidently, the Covid-19 pandemic has caused an abrupt change in the learning transition from a major reliance on face-to-face learning to an online learning environment. This also applies to the instructor who teaches online English language classes in terms of adjusting themselves to a rapidly changing environment. Online instructors, especially language instructors, are obliged to support students' understanding of the online environment together with students' progress, engagement, and interactions within the course in this new and challenging context. Supporting student engagement and perseverance remains the most challenging aspect for online instructors. Instructors should be provided with sufficient training to teach in this online language learning environment to advance their technical skills and to be capable of developing online language tasks and assignments for the students, especially since the online language learning environment requires an even greater level of motivation to learn on behalf of the students.

Finally, in terms of effectiveness in learning the four skills of a language, only reading and listening skills were reported to be effective as more opportunities arose to read and listen from the online resources. Speaking and writing skills proved to be the opposite case. The participants were more motivated to learn receptive skills through the opportunities presented by the learning environment than to learn productive skills due to their skepticism over their language skills emanating from the lack of receptive skills practices. According to Golkova and Hubackova (2014), it is not strange for students learning a second language for the receptive skills to come first followed by the practical application of productive skills. Moreover, productive skills require a strong grounding in receptive skills in order to develop. Therefore, instructors should understand the learning nature of language learning of the students in order to design suitable assignments and tasks for the students in the future.

CONCLUSION AND RECOMMENDATIONS

The study yields several major findings. Firstly, the asynchronous mode may be more suitable for an online class with varied levels of English proficiency because it allows students to study at their own pace and at their own time. Secondly, the limitations of the three modes in the study have been overestimated and can be overcome with a strong sense of academic control. Moreover, based on the study's findings, the synchronous advantage of interactive social emotion, which was assumed to be the prime supporter in students' language learning, has shown to be overrated. Thirdly, although students' self-regulated and perceived English language learning does flow in a parallel manner with the modes-participants compatibility, there are evidently other factors such as family roles, internet barriers, motivation, and personal interest that indirectly shape how participants self-regulate their learning and perceived English language

learning. The learning modes themselves, therefore, cannot be held entirely responsible for influencing the participants' learning process. However, in this study, a strong claim can be made for the powerful impact of the online learning modes on the promotion, obstruction, and development of participants' self-regulated and perceived English language learning. Lastly, online language learning may not be suitable for novice online language learning students since they are still struggling with getting used to the high level of autonomy and could not yet fully control their learning. Learning language requires a strong ground in the foundation of grammatical and vocabulary knowledge and a wholeheartedly engagement in applying those foundation to real life communication, which, by its very nature, demands a high level of self-determination.

Nevertheless, the findings of this study should be carefully interpreted and applied due to its limitations of sample size, participants' level of proficiency, and time span. Future studies could focus on larger samples and longer periods of time. Also, the researcher was the sole instructor for all sessions. More in-depth analyses of instructor roles are needed to enhance students' learning experiences and to gain more knowledge. For future research, a focus on online English language instructor training to determine the online instructional practice required to improve students' online English language learning performance is well worth investigating. Hopefully, this research has contributed towards shedding some valuable light onto the field of online language learning to enhance education continuity in the time of the pandemic and into the future.

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