

students perception on TPACK

by Daniel Ginting

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Students' perception on TPACK practices on online language classes in the midst of pandemic

Daniel Ginting¹, Fahmi Fahmi², Yusawinur Barella³, Muhamad Hasbi⁴, Kadnawi Kadnawi⁵, Ahmad Ridho Rojabi⁶, AINU ZUMRUDIANA⁷

¹English Letters Study Program, Faculty of Languages and Arts, Universitas Ma Chung, Malang, Indonesia

²English Education Department, Faculty of Teacher Training and Education, Universitas Ahmad Dahlan, Yogyakarta, Indonesia

³Social Studies Department, Faculty of Teacher Training and Education, Universitas Tanjungpura, Pontianak, Indonesia

⁴English Education Department, Faculty of Teacher Training and Education, Institut Agama Islam Negeri Salatiga, Salatiga, Indonesia

⁵Tadris Bahasa Inggris, Faculty of Tarbiyah, Institut Agama Islam Hasanuddin Pare Kediri, Kediri, Indonesia

⁶Tadris Bahasa Inggris, Universitas Islam Negeri Kiai Haji Achmad Siddiq, Jember, Indonesia

⁷English Education Department, Faculty of Teacher Training and Education, Universitas Nahdlatul Ulama Sunan Giri, Bojonegoro, Indonesia

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ABSTRACT

This study investigated technological pedagogical and content knowledge (TPACK) practices during the current COVID-19 pandemic and examined factors influencing students' perceptions of effective online learning. This study gathered the primary data from 90 university students from four study programs via the online questionnaire. Using an analysis of variance (ANOVA) statistical tool for data analysis, this study found that students' perceptions of their teachers' teaching performance in the fully online programs are not significantly different across four study programs. This finding implies that regardless of their study programs, the students had expected that teachers should pay attention to some vital aspects in online learning: using the same learning management system (LMS) for all study programs, and preparing designing practical online modules, taking care of the organization of teaching inputs that promote students' critical thinking, delivering various teaching inputs and methods, intensifying teachers' presence in monitoring students' learning progress, motivating students to learn, and promoting teacher-student mutual respect through effective communication. This study also revealed that teachers play a pivotal role in achieving effective online learning during the pandemic.

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Corresponding Author:

Fahmi

English Education Department, Faculty of Teacher Training and Education, Universitas Ahmad Dahlan
Pramuka Street No.42, Umbulharjo, Yogyakarta 55161, Indonesia

Email: fahmi1300004240@webmail.uad.ac.id

1. INTRODUCTION

The outbreak of the new Coronavirus in the past two years has forced many walks of life to take on abrupt changes in the ways they operate. People were unprepared for this "unpredictable dangerous pandemic" and were forced to implement drastic measures to cope with the challenge [1]. The transition to online classes in the midst of pandemic surely causes challenges for educators [2]. The pandemic has made educational institutions adjust their teaching and learning processes. As a consequence, the online learning system that they implement in unscheduled meetings has substituted their face-to-face meeting in this pandemic [3], [4]. Grätz and Lipps [5] mentioned that reducing studying time from 35 hours to 23 hours a week has occurred in Switzerland since the pandemic. In Indonesia, schools and universities have

discontinued their face-to-face teaching activities and replaced them with online teaching and learning since March 2020. The sudden shift from conventional methods to online classes has created some issues.

English as a foreign language (EFL) teachers face a dynamic learning environment in using technology [6]. Remote teaching that has been conducting for more than two years has caused some problems related to psychosocial and technical matters [7]. Availability of limited internet data packages, poor connection or signals, and ownership of cellular phones or laptops are problems that usually occur during these emergency distance classes [1], not to mention the distraction of activities of family members. Parents, especially mothers, also feel that online learning has changed their lives. Megasari *et al.* [8] said that the younger age group, women, and lower levels of education (middle school and elementary school) are among the groups with a higher potential for concern than the older age group, men, and higher education levels. A study by Kritpracha, Kaosaiyaporn, and Atisabda [9] reported that students' needs should be the driving factor determining learning management and that the lessons should be made available across times and locations. Communication between teachers and students shaped students' perceptions [10]. Based on these studies, we conclude that course planning, assessment, faculty training, and curriculum were reported to have an essential bearing on students' perceptions of online courses.

Technological pedagogical and content knowledge (TPACK) is the popular term that has been discussed in the recent decade. It serves as a theoretical framework concerning educator's ability to master, design, and conduct the integration of technology in education [11], [12]. This framework becomes a bridge that connects educator's knowledge and educational technology [13]. In a simple sense, TPACK is a theoretical foundation that necessitates integrating teacher knowledge and technological content knowledge [14]. TPACK implementation gives students advantages, such as mastering technology practices, enhancing learning performance, improving knowledge, providing creativity space, and encouraging self-learning [15].

Historically, the idea of TPACK was triggered by a debate involving policymakers in higher education institutions and the administrative management department regarding the requirements of teacher certification. Specifically, they have different perceptions concerning the aspects that should be inserted in teacher competence, namely content knowledge (CK) and pedagogical knowledge (PK). Even this debate was constantly sparked because 50% of the teachers working at the colleges teach content courses in their higher educational institutions [16]. To mediate the debate, previous study [17] emerged and asserted that mastery of the CK of a course and mastery of PK are two essential things that cannot be separated. CK and PK are fundamental aspects that every teacher should master. CK and PK also cannot be treated separately [17]. Mastery of course/lesson content, CK is related to the teacher's knowledge about the subjects they teach. The teachers' knowledge includes the basic concepts, theories, ideas, frameworks in an organization, teachers' understanding of evidence and facts, and promising approaches and practices in developing their knowledge [14]. PK is related to mastery of knowledge of teaching and learning processes, along with its practices and methods [14]. This matter includes understanding how students learn, applying general skills in classroom management, planning the lesson, and doing some learning assessments on the students. The teachers must understand the target audience's personality, implement the teaching techniques and teaching methods in the class, and understand the teaching strategies to evaluate students' ability to understand the material provided [14], [17]. A teacher with deep pedagogical knowledge (language teacher's knowledge in EFL term) surely understands on how their students acquire skills, develop knowledge, built thinking habits, and receive their learning positively [18]. Another study even strongly believed that the necessity for teachers to obtain TPACK is a mainstream change in any educational system [19]. Thus, pedagogical knowledge needs an understanding on social, cognitive, and developmental learning theories and how these theories are implemented into classroom atmosphere. 25

Koehler and Mishra [12] introduced the integration of technology in teaching and learning by adding technological knowledge as its essential component. After adding technological knowledge to the two previous components (mastery of course content knowledge and pedagogic knowledge). Mishra and Koehler [14] developed and introduced three essential components regarding teacher professionalism, namely CK, PK, and technological knowledge (TK). The addition of the component of TK turned out to bring a new intersection and the term TPCK began to emerge. Thompson and Mishra [20] firmly transformed TPCK to TPACK to enunciate component or domain linkages more accurately. Then, over time everything changes, the term TPACK becomes more popular among academicians and researchers. For instance, Schmidt *et al.* [21] built up the instrument of TPACK for measuring the prospective teachers self-assessment in the TPACK framework. The framework is emphasized as a framework that can potentially affect both training and teacher's professional development. The combination of technological knowledge, content knowledge, and pedagogic knowledge give birth to seven sub-competence technological knowledge, pedagogical knowledge, content knowledge, technological pedagogical knowledge (TPK), technological content knowledge (TCK), pedagogical content knowledge (PCK), and technological pedagogical and content knowledge (TPACK).

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Tseng and Yeh [22] carried out pre-and-post-TPACK surveys to measure the improvement of participants' computer assisted language learning (CALL) competencies. The result of surveys portrayed that prospective teacher demonstrated higher levels of CALL competencies after the project-based learning (PBL) project. Meanwhile, Ju, Park, and Lim [23] studied the structural relationship between TPACK, teacher self-efficacy, and technology acceptance model (TMA). The findings showed that pre-service teachers' TPACK significantly affected teacher self-efficacy and perceived ease of using technology. Furthermore, Taopan, Drajati, and Sumardi [24] investigated the narrative inquiry of an English teacher regarding her perspectives in the TPACK framework for teaching English in high school and how those perspectives formed during her career as a teacher. The results showed that there should be a balance of mastery among technology, pedagogy, and content knowledge. The findings also portrayed that facilities and negotiation in integrating technology are also essential. Hence, Drajati *et al.* [25] examined the English language teacher's story toward developing TPACK and multimodal literacy. The findings are intended to give alternative procedures to developing and implementing the TPACK framework for English teaching.

Other researchers have also done several investigations on the implementation of TPACK [1], [6], [26]–[34]. In this case, Surayya and Asrobi [1] examine how integrating technology, pedagogy, and content knowledge in the writing context is part of the TPACK framework for practical EFL teachers. Besides, Ammade *et al.* [26] also analyzes technological, pedagogical, and content knowledge, especially related to TPACK literacy among lecturers at Universitas Muhammadiyah Pare Pare, Indonesia. The questionnaire results showed that the lecturers' literacy levels on technology, pedagogy, content knowledge, and TPACK are on a moderate stage. Next, Ringotama [27] investigates how the pre-service teachers understand the TPACK principle and apply TPACK in their classrooms. Then, Alnujaidi [6] investigates the level of knowledge of pre-service and in-service EFL teachers in Saudi Arabia related to material content, pedagogy, and technology, concerning gender, school ability in internet access, and training in using technology. His study finds that both pre-service teacher education programs and in-service teacher training courses need to focus on content, pedagogy, and technology and the relationships among them to assist EFL teachers in implementing and integrating technology in the classroom teaching process [6].

Previous researchers strive to do some studies regarding TPACK; however, to what extent teachers can fulfill TPACK's three domains (TK, PK, and CK) has been under researched, especially during the pandemic. In reality, teachers struggle to integrate technology into their classes, such as unstable internet access, lack of internet devices, digital illiteracy, and unprepared planning for online learning [1]. These problems are indeed a tough challenge for Indonesian educators to fulfill a successful TPACK implementation. Moreover, the unpredictable presence of the COVID-19 pandemic [1] has hit their feeling, concentration, and economic necessities, which hamper their capability to upgrade their electronic devices for their learning. Thus, this paper aims to fill the gap by focusing on two research questions: i) To what extent teachers have implemented TPACK during emergency remote teaching?; ii) What factors affect student's perceptions of effective learning? These investigations are expected to give an overview regarding the fulfillment of TPACK domains during implementation amid pandemic and enable educators to find the obstacles and change their teaching strategies to meet student's learning perspectives.

2. RESEARCH METHOD

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This present study surveyed college students' perception of the online program during the odd semester of the 2020-2021 school year. The authors carried out a preliminary study and found that all classes had been shifted to online learning as a response to the mandate from the Indonesian government's policy about educational practices during the pandemic. The university leaders instructed that all lecturers should design eight modules for sixteen meetings in one semester. In addition, all lecturers were also instructed to use the same learning management system (MS team). Each module took two weeks for the students to accomplish. In the first week, the students were required to watch videos uploaded on the YouTube channel, read e-books, and join the discussions. In the second, the students had to attend the teleconference with the lecturers. Before the commencement of the new semester, the university leaders gave an online orientation day so that both the lecturers and students could navigate all modules using the Microsoft Team platform.

The authors took the initiative to monitor and evaluate the quality of the online classroom teaching and learning process. To achieve this goal, the researchers prepared an online Google Form questionnaire consisting of closed-ended questions (4-Likert scales/very satisfied, satisfied, dissatisfied, and very dissatisfied). To ensure the validity of the questionnaire results, the researcher informed students that they had to be honest in filling out the questionnaire. The latter was also told that the results of this questionnaire had no impact on their final scores. This online questionnaire was then spread through the WhatsApp instant messenger groups from August to mid-October 2020.

2.1. Participants

Before filling out the questionnaire, the students were told to read a brief description of the purpose of the questionnaire and the submission procedures. The authors convinced them that participation in this study was voluntary, and it was free for them to withdraw at any time. The authors never promised to give any extra credits or grant them any presence to compensate for their participation in this study. Regarding ethical consideration, the authors used pseudo names to protect the privacy of the key informants.

Out of 90 students, 33% were from the English Letters study program, 26% from the Information Systems study program, 23% from the Mandarin language education study program, and 18% from the informatics engineering study program. The authors also interviewed several students from each study program upon the completion of the questionnaires.

2.2. Data analysis

The data on the Google Form spreadsheet were analyzed and tested with an analysis of variance (ANOVA). It looked into the differences in a student satisfaction variable regarding online class practices in four study programs. The data presentation, such as frequency distribution, percentage, and bar charts, were displayed to facilitate the interpretation of the results.

2.3. Statistical validation

The data normality test was carried out to ascertain whether the research data were normally distributed. The Shapiro-Wil significance number shows $0.071 > 0.05$. This finding indicates that the research data are normally distributed. The test result of its normality is shown in Table 1.

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Table 1. Results of normality test

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Study programs	.076	90	.200 ^a	.974	90	.071

^aThis is a lower bound of the true significance

We ran ANOVA statistical analysis to test the mean differences among the students of four study programs regarding their satisfaction with online classes. The statistical calculation shows that a significant number of 0.078 is bigger than 0.05. We concluded that the level of satisfaction of the student groups from the four study programs is not significantly different. This finding implies that regardless of their study programs, the students expect lecturers teaching online to pay attention to the balance of pedagogical, content, and technological aspects. This phenomenon also occurs on other study which its finding shows that there are no balance among each TPACK sub-domains (PCK, CK, TK, PK, TCK, and TPK) in which PCK dominated most of the discourse [28]. The same thing also occurs to other study which its finding overview that the TPACK level development in their study was still not fully achieved by the teachers [19]. A study conducted by Surayya, Asrobi, and Farizi has found that most Indonesian EFL teachers are at the median level of readiness to learn and practice TPACK [4]. They conducted a survey which the result shows that only 23% participants have a strong willingness to understand the TPACK. Meanwhile, 63% participants at moderate level which indicate their TPACK at middle level. This study concludes that most of the EFL teachers have middle willingness in understanding TPACK and needs some encouragement on their internal motivation through providing some trainings and real context practice about TPACK by government and their internal institution [4]. The clearer result of statistical analysis of satisfaction level of the online classes can be seen in Table 2 and Table 3.

Table 2. ANOVA test of satisfaction level of the online classes

	Sum of squares	Df	Mean square	F	Sig.
Between groups	177.866	3	59.289	2.355	.078
Within groups	2165.034	86	25.175		
Total	2342.900	89			

Table 3. Multiple comparisons dependent variable: Satisfaction level of the online classes

(I) Study program	(J) Study program	23 Tukey HSD			95% Confidence interval	
		Mean difference (I-J)	Std. Error	Sig.	Lower bound	Upper bound
English Letters	Information System	-2.825	1.553	.272	6.89	1.24
	Mandarin	-3.408	1.633	.166	-7.69	.87
Information System	Information Technique	-.482	1.665	.991	-4.84	3.88
	English Letters	2.825	1.553	.272	-1.24	6.89
	Mandarin	-.583	1.391	.975	-4.23	3.06
Mandarin	Information Technique	2.343	1.428	.361	-1.40	6.08
	English Letters	3.408	1.633	.166	-.87	7.69
	Information System	.583	1.391	.975	-3.06	4.23
Information Technique	Information Technique	2.925	1.514	.223	-1.04	6.89
	English Letters	.482	1.665	.991	-3.88	4.84
	Information System	-2.343	1.428	.361	-6.08	1.40
	Mandarin	-2.925	1.514	.223	-6.89	1.04

3. RESULTS AND DISCUSSION

3.1. Prioritize practical aspects in designing the modules

This study found the importance of practical considerations in determining learning management systems and designing module content in online classrooms. The definition of practical considerations refers to how academic communities can effectively manage online classes according to their abilities. Figure 1 shows that the students enjoyed the online learning process using one type of LMS, as proved by 57% satisfied and 39% very satisfied. According to them, using one type of LMS, as the faculty has determined to utilize the Microsoft Team platform for courses, makes it easy for them to monitor the learning process of all courses and plan future learning activities. By installing one type of application on their respective androids, students can watch video tutorials from lecturers, read material from e-books, do assignments, discuss with classmates and lecturers, revise projects based on lecturer feedback, find out and review their formative assessment results. Receiving email notifications automatically and periodically on Android and reading the schedule from the descriptions of courses in the module helps them divide their time.

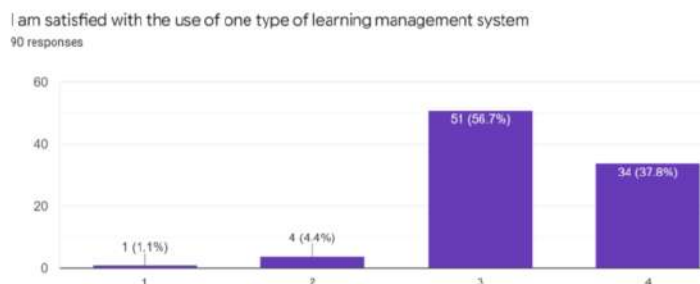


Figure 1. Students' satisfaction with the use of one LMS

The students did not benefit from using various kinds of Learning Management systems other than using a single type of LMS in this emergency distance classroom education. Not a few brilliant students complain about how difficult it is to monitor the assignments of lecturers because of the various LMS in the last semester. These intelligent students do not want to lose assignments; however, they sometimes have technical difficulties logging in and navigating through the different features of the LMS. Not all LMS has the facility to send automatic notifications reminding of deadlines for tasks. It is not surprising that the student's evaluation of the learning process at the end of the semester and the results of the open forum with students were full of complaints about the LMS. In short, students are frustrated by the variety of LMS.

The faculty never expected that numerous LMS such as Schoology, Moodle, Canvas, Microsoft Team, and Google Classroom had impacted students' learning moods in the online class. Learning from the results of this evaluation, the faculty leader held a meeting with all the lecturers, and finally, the meeting resulted in a consensus to use one type of LMS. Thus, lecturers must be willing to let go of their sectoral egos against the choice of LMS, which may be different from the joint decision. This study found that students were delighted with this decision. This finding strengthens the point about how to achieve TPACK in TK.

Students' perception on TPACK practices on online language classes in the midst ... (Daniel Giniing)

Mastering the TK in TPACK is not about mastering all LMS at once but prioritizing the practicality of particular LMS as students' needs. Therefore, the student's fulfillment of TK is more exclusive than most previous studies. The students who do not know about several LMS in practicality do not mean that they do not fulfill the mastery of TK in TPACK. The idea of familiarity in LMS can be one of the factors. In other words, students have known the words or mastered particular LMS that the teacher or lecturer might not know. In this case, the educators should be concerned about students' TK of LMS and its practical aspect to implement TPACK in online classes. Moreover, the level of achiever also influenced the fulfillment of TK. The low achiever mainly needs more assistance rather than the higher achiever. Meanwhile the middle has an average TK [1]. Thus, prioritizing the practical aspects in modules can help the low achiever in mastering their TK and fulfilling effective learning.

Paying attention to practical aspects also applies to how faculty members can package module content according to emergency online classroom conditions. This matter is unquestionably related to CK in TPACK. To transfer the entire curriculum content prepared initially for face-to-face classes to online classes is not a wise decision. According to Tootoonchi [35], to obtain effective results in online learning, a teacher must understand that the design and delivery of the curriculum are very different from face-to-face learning. Thus, forcing all curriculum content into online classroom programs does not make learning effective. For example, requiring students to attend online meetings such as face-to-face class schedules to learn new topics/knowledge while working on assignments makes absolutely no sense. This action will only harm many parties, both teachers and students themselves. The following are the impressions of the respondents regarding online meetings.

"Please do not hold online meetings too long. Every student has different conditions, and some of them cannot even afford to buy internet quotas. Sometimes they get problems with the network, sudden blackouts."

Conducting routine online meetings costs money, while not all parties, both students and even teachers, have good internet connection support and supporting technology infrastructure. In addition, the minimal duration of online meetings made it difficult for students to understand new material well in a short time. Designing module content for online classes is practical by adopting and adapting curriculum content according to the critical level of learning objectives (the level of importance). For example, the learning objectives in the curriculum prepared for sixteen meetings in one semester are modified into eight modules. Each module takes two weeks. The first seven days of the module are designed to strengthen low-thinking skills (remembering, explaining, and applying). Students do some activities in the first seven days of each module: exploring learning inputs (watching video tutorials on new topics, reading articles from e-books/PowerPoints), and doing discussion assignments or multiple choice. Meanwhile, the second seven days encourage students to think at higher levels (analyze, evaluate and create). Online meetings with students are scheduled for this second week. This study found that, in general, students were comfortable with the design of this simplified module version. Figure 2 shows that 50% of respondents said they were satisfied, and 22% were delighted. The following is a comment from students about online class activities and the percentage of their satisfaction.

"I think the online learning that has been done so far is going quite well and smoothly. They make me more confident to ask questions that I do not understand."

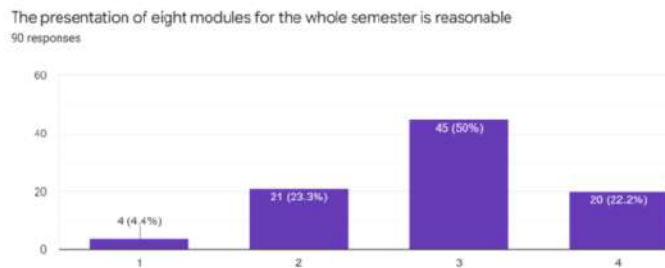


Figure 2. Students' satisfaction with the modules in the online classes

Practically managing the modules in online classes has a significant cost impact. It is providing the students and lecturers with less financial burdens. From the financial point of view, the learning activities in the online class module can be calculated as in Table 4 and Table 5.

Table 4. Activities and estimated costs per module

No	Learning activities for one module	Estimated loads	Cost is Rupiah
1	Watching a video on YouTube for 15 minutes	200 MB	Rp. 2,000
2	Downloading one file	20 MB	Rp. 200
3	Uploading a file	20 MB	Rp. 200
4	Joining a teleconference using Zoom per hour	1000 MB	Rp. 10,000
5	Sending a text message (via chat)	20 MB	Rp. 200
6	Reading the information on Ms. Team (LMS)	20 MB	Rp. 200
	Total		Rp. 12,800

Table 5. Estimated costs of online classes at the end of the semester

Σ courses per semester (A)	Σ gigabytes per module (B)	Σ modules per semester (C)	A x B x C	Cost per 1000 MB (IDR)	Total cost per semester (IDR)	In US (\$)
5	1.3	8	51.2	10,000	512,000	35
6	1.3	8	61.44	10,000	614,400	42
7	1.3	8	71.68	10,000	716,800	49
8	1.3	8	81.92	10,000	819,200	56
9	1.3	8	92.16	10,000	921,600	63

Table 5 shows that students can study five to nine subjects in one semester. While one module requires an internet quota load of approximately 1.3 GB, and students must complete eight modules in one semester, the maximum total cost (9 courses) is around Rp. 921,000 or equal to \$ 63 only. The exchange rate of the Rupiah against the US dollar on October 29, 2020, was 14,744. In reality, the Indonesian government provides internet assistance of 50 GB per month to students and teachers all over Indonesia. This official government website explained government assistance for internet quota to students: <https://kuota-belajar.kemdikbud.go.id/>. The Indonesia Ministry of Education and Culture or *Kemendikbud* issued the Secretary-General Regulation Number 14 of 2020 concerning technical guidelines. Internet data quota assistance is provided to students, educators, and teachers, as well as lecturers. The technical guidelines explain how to get internet quota assistance (general and learning quotas) from the Ministry of Education and Culture. A general quota is a quota to access all pages on the internet and use digital applications. Meanwhile, a learning quota is a quota to access learning websites and run the applications in the androids. Kindergarten students get 20 GB per month, with 5 GB for the general quota and 15 GB for the learning quota. Primary and secondary education students get 35 GB per month, with 5 GB intended for the general quota and 30 GB learning quota. Meanwhile, secondary and tertiary students get 42 GB per month, with 5 GB for the general quota and 37 GB for the learning quota. Educators teaching in kindergarten, primary and secondary education get an internet quota of 42 GB per month, with 5 GB for the general quota and 37 GB for the learning quota. Students and lecturers get 50 GB per month, with 5 GB for the general quota and 45 GB for the learning quota. This fact shows that the actual cost burden should no longer be a critical issue as it used to be.

Based on those elaborations, it shows that fulfilling TK domain in TPACK is related to the mastery of LMS and students' affordability cost to access LMS (internet cost). The teacher can boost the practical strategies to help the students obtain affordable access, such as the fast access of particular LMS. In this sense, selecting a particular LMS that is possible for students to access is the way to help them with effective learning. Besides, ensuring the module's content is also essential to increase students' CK. Simple, detailed, and attractive guidelines of the module will ease the students' understanding to learn the content. The rest depends on how the teachers use the content of the module related to PK. Thus, those three domains in this study are closely related to each other and fulfill the implementation of TPACK [14].

3.2. Organize teaching inputs while promoting critical thinking

The modules that the lecturers arrange in this online class consistently display tiered teaching inputs for each module. For example, the first seven days of a module always start with practicing remembering and understanding new concepts through video tutorials, e-books, power points, infographics, and audio recordings; and encouraging students to apply the new knowledge through discussion assignments and multiple-choice questions. In short, these forms of tasking are designed to challenge low-level thinking at the beginning whenever a new module is introduced to students. Figure 3 shows that 59% of students said they

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were satisfied, and 27% delighted. They feel that the form of discussion is constructive in their understanding of new topics. Apart from interacting with the material, students can exchange ideas with their friends and lecturers, which surprisingly contradicts the previous research [36]. Discussion in online classes (8%) were very unhelpful instructional activities, while instead, the instructional videos (99%), PowerPoint (with or without recorded narration) (95%), quizzes (93%), live classroom video recordings (87%), and instructional audio (86%) were the most helpful instructional activities in online learning.

Discussion tasks are very useful to help me and my friends understand and apply new knowledge to solve the problems.
90 responses

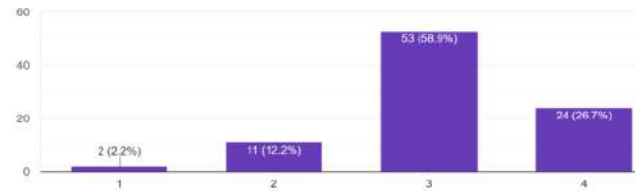


Figure 3. Students' satisfaction with discussion on the online classes

Furthermore, in the following seven days, the module is designed to train students in analyzing, evaluating, and creating a product through project assignments such as analyzing and evaluating several readings, making essays, and videos. This study found that the number of assignments in this online class is quite realistic. Figure 4 shows that 49% said they were satisfied. Meanwhile, 23% said they were delighted.

The number of assignments the lecturers have given to every module are realistic and reasonable
90 responses

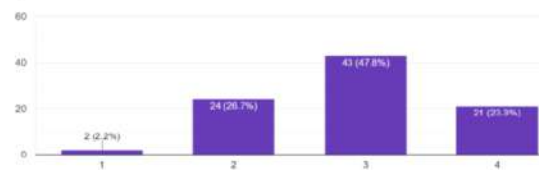


Figure 4. Students' satisfaction with the number of tasks on the online classes

Those findings show that the modules guideline and teaching strategies are prepared to fulfill the PK domain. That 59% of the respondents were very satisfied and 27% were satisfied indicated that the lecturers had sufficient PK in implementing TPACK. Based on the result of analysis regarding discussion and number of tasks on the online classes, TPACK implementation amid pandemic is quite satisfying and portrays how far lecturers have practiced TPACK during the pandemic. This finding aligns with Mishra and Koehler [14], who believe that integrating technology and pedagogy into online classes can accomplish communicative competence among students in EFL teaching.

3.3. Vary teaching inputs and methods

Managing online class input by paying attention to the proper quantity and quality of teaching inputs is essential in online classes. Relying on one input type, such as video alone, while neglecting other types is less feasible for practical online classes. Students do not always understand lecturers' explanations from one video source. It is unfortunate, but this has happened, some lecturers only distribute power points or e-books, and they do not provide any explanations about new topics. Furthermore, students must take a formative test based on power points or e-books that the lecturer distributed. Even the professor did not schedule a teleconference where the students were likely to ask questions. Finally, as we might expect, many students get frustrated and complain about how the lecturer manages the class. They feel that they are not getting good

learning results with these online classes. This study is to ask the respondents about the types of teaching materials they like during online classes. Figure 5 shows that most (60%) prefer a combination of modes such as video, audio, and digital text (e-books, websites, and PowerPoint) rather than one or type of mode.

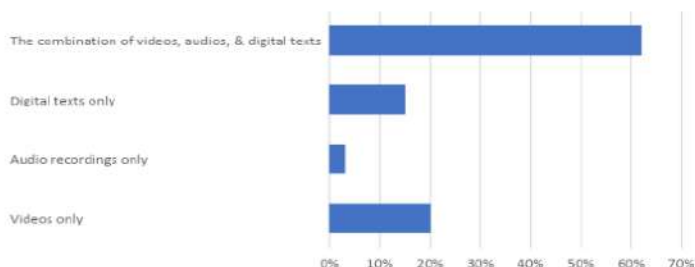


Figure 5. Students' preference on types of teaching materials during online classes

From the students' point of view, combining these learning inputs enriched their knowledge of new topics and complemented each other. Students admit that watching videos is the first activity they do when learning new topics. Videos involving text, sound, and moving images stimulate the entire spectrum to work and make students understand new information better. Students like short but clear videos to convey important messages. For them, background music is not essential in videos. On the other hand, the sound of music can damage their attention to concentrate on the lesson. Providing captions such as lines, circles, or zooming in presentation points helps them understand the lesson's essence. Students also advised the lecturers to upload the videos on YouTube to access the subject matter at any time.

"I think all lecturers need to provide learning not only through teleconferences but also through videos. Make sure that all students can have easy access to them."

"We hope all lecturers take advantage of and make videos and send them to YouTube. Uploading videos allow students to repeat the lessons if they do not understand them."

"There should be more mixture between face to face and files (video/sound) so that students are also not bored with lectures."

This research also found that combining asynchronous teaching mode and synchronous teaching mode is one way to create variation in teaching. As shown by Figure 6, college students enjoy this combination. So far, asynchronous learning activities are facilitated by the MS Team platform through which students receive learning materials in various modes (videos, e-books, power points) and do assignments according to a set schedule. Meanwhile, the lecturer schedules a teleconference meeting once in two weeks using the MS Team.

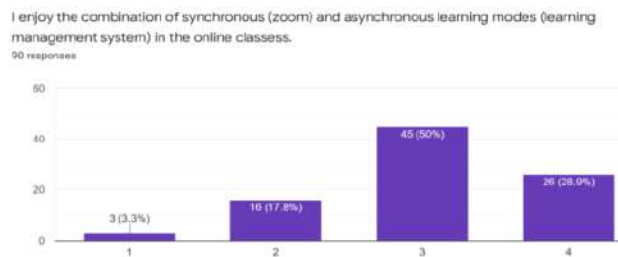


Figure 6. Students' satisfaction with the combination of synchronous and asynchronous teaching modes

Regarding teleconferencing activities, students are requesting the lecturers to save time. Teleconferences should be prepared as well as possible, and these online meetings aim to strengthen students' understanding of new topics. They admit that they do not always understand the lecturers' explanations that they convey through videos in LMS. The teleconference will be meaningful if the lecturer makes it into a short (20-30 minutes) session and a question and answer. Students objected to doing a teleconference being made to make their presentation.

"Students should not present material if they present assignments during teleconferencing. The assignment should be sent to the lecturer only. If students have to watch other students' presentations during teleconferencing, this is not effective: We do not understand the material described by our fellows delivering the presentation; It takes much time, about 20-30 minutes; We feel bored and discouraged; This kind of learning makes me less enthusiastic about studying other classes. In the teleconference, the lecturers should do it for 20 minutes."

Based on this elaboration, the fulfillment of CK is related to PK, in which the variety of content can encourage students to adopt various teaching inputs. On the side, PK is also vital to ensure the instructions given to students can encourage students to understand the content of the module on online learning. The students obtain the TPACK through observing the teaching process and imitate it using the internet as media [15]. Furthermore, other studies found five educators' roles in helping the students obtain TPACK in learning, namely facilitator, controller, motivator, model, and provider [15]. Therefore, any educators should consider these roles to help the students get similar domains in TPACK.

3.4. Paying full attention to students' learning progress

In the current online learning model, the presence of teachers is one of the essential factors to obtain a good quality of education, previous researchers [37], [38] argued that the activities included in teaching attendance are teaching and learning activities, monitoring students in learning to achieve the best results, developing curriculum content, scheduling, and teacher approaches to students. This study found that students expect attention from the lecturers to monitor their learning progress. The following are the examples of the lecturers' attention that the students expect from them: providing comments on student opinions on discussion assignments and giving questions that challenge them to think critically and find suitable answers; explain the results of formative evaluation regularly and provide an on time and regular evaluation of project assignments. This finding is in line with research conducted by Bolliger [39], which revealed that regardless of distance, learning model, and student level, the interaction between teachers and students is essential for student satisfaction in learning. Therefore, a teacher needs to increase student satisfaction in online learning by increasing interactions in learning, such as providing feedback to students to answer and ask questions and provide opportunities for discussion between students [40].

So far, students have complained about the lecturers' ignorance for not providing review sessions for the previous formative tests. Instead, the students are only given the results or scores of their formative tests; however, they have no idea why they make mistakes. Some students end up contacting their lecturers to get the answer key to do their self-review. Figure 7 shows that most students (47%) liked the lecturer's attention in the online class, while 41% said they were satisfied with the academic services that the lecturers had provided so far. Lin and Gao [41] discussed, good communication by teachers in online learning can help students improve their learning abilities because students can directly ask questions and get feedback from the teacher. In addition, the interactive learning environment can make students more relaxed in discussing with other students in online classes. A study conducted by Um and Jang [40] showed similar results from our findings. Um and Jang [40] obtained a Cronbach's Alpha of 0.84 related to the interaction between students and teachers, especially on teachers' attention to students' learning progress. This number means that student satisfaction in online learning is very positive. These results show that the students obtain the TPACK through obtaining the attention, feedback, and encouragement of communicative competence, which leads to the fulfillment of TPACK's domain, pedagogical knowledge [18].

Paying attention to students' learning progress is the duty of the lecturers. On the other hand, some lecturers admitted that they find it challenging to manage their time to monitor their learning progress. First, the lecturers have relatively many online classes in one semester. According to their reports, they had to handle an average of 5-7 classes. On the other hand, they are also required to carry out other tasks such as making articles published in journals, making textbooks, and carrying out community service activities. They also have a dual responsibility as the head of the families taking care of their children at home who are also studying online. Not a few have reported that sometimes some lecturers check their student assignments till late at night. Checking students' work is a good time to monitor student activities when they have finished their household chores at home. These practices reflect teachers' PK in TPACK [14]. Most students were

very satisfied and satisfied when they get attention. Attention to students' progress can promote communicative competence and fulfill PK [18]. The social presence gives them more energy and motivation to gain knowledge about the content or the practical use of technology in their learning. Perceiving social presence indeed adds good moods and a good atmosphere to the teaching and learning process, especially to perceive the TPACK.

I am satisfied with the lecturers' attention to my learning progress through giving comments, evaluating or feedback / feedback on the tasks I have completed.

90 responses

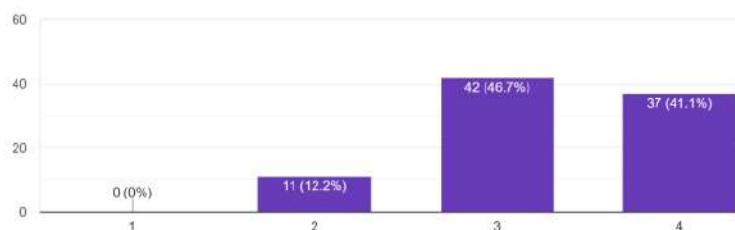


Figure 7. Students' satisfaction with the lecturers' attention to their learning progress

3.5. Motivate students to learn

Motivating students during online classes is one of the findings of this study. Giving motivation to the students can be done through the following examples: willingness to give more space for consultations outside the LMS, providing information about assignment schedules and materials the students have to prepare for the next module through instant messenger groups or email. Figure 8 shows that 48% enjoy using instant messenger apps. Meanwhile, 41% view that the instant message applications are very helpful.

I am satisfied with the way the teachers make use of the instant messenger group (Whatsapp) that helps me and my friends with the online learning

90 responses

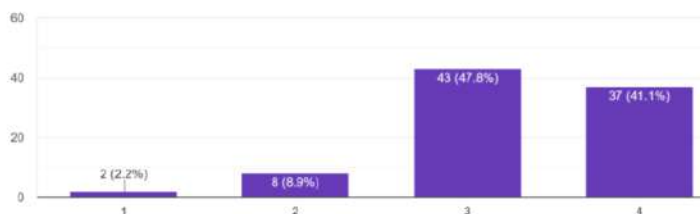


Figure 8. Students' satisfaction about reminders sent through instant messenger group

Several students admit that they have not had any problems with the lecturers' topics in online classes. However, for some other students, understanding new topics is not always easy. For example, in Mandarin class, some students still have difficulties writing correct Chinese characters. Some have tried to ask their more brilliant friends. However, they cannot always depend on their friends. On the contrary, they hope the lecturers can help them. However, these students are afraid to ask the lecturer for help. Feeling frustrated, she has reported to the authors to quit studying in the Mandarin study program.

"I have a problem with how to write Chinese characters well. This is just one of the many problems I have. I tried to solve this problem by asking a friend. However, I think I have bothered my friend a lot. I feel like a failure. I do not know-how. I think I will resign from the Mandarin study program."

1

Students' perception on TPACK practices on online language classes in the midst ... (Daniel Giniing)

The passive students, especially the low and middle achievers, surely need direct guidance and motivation from the educators. Moreover, TK and PTK commonly depend on the level of achiever. The lower their TK and PTK shows that the more motivation needed by the students. Conversely, middle and high achievers indeed have an average TK and PTK [1].

3.6. Build mutual respect in online classes through effective communication

Building online classes into a safe and comfortable place for all members to learn and share knowledge is an absolute necessity. A good online community is seen from how far the participants can actualize themselves without worrying about being humiliated. In a conducive online learning community, students dare to ask questions and provide suggestions. All parties, lecturers, and students respect each other's ideas. Therefore, the online classes which are the object of this research at the beginning of the lecture, have established several course contracts with the students. The contract states the netiquette that students must do during online classes, including polite language when discussing or giving advice. Figure 9 shows that 44% said they were satisfied, and 40% said they were very satisfied.

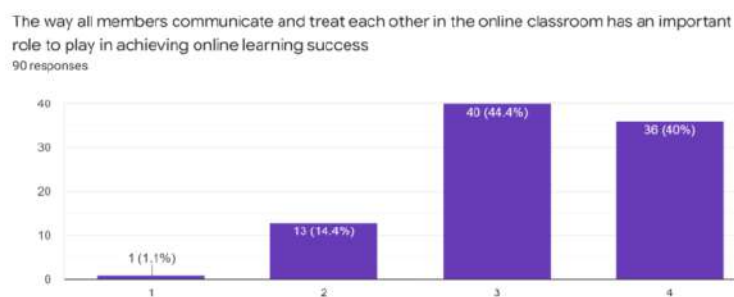


Figure 9. Students' satisfaction with the learning atmosphere in the online classes

A favorable learning atmosphere in online classes is also shown by the more excellent tolerance attitude of the lecturers. Students expect that lecturers are willing to understand students. They cannot avoid problems while studying online such as poor internet connection, a distraction from activities in their home, or electricity. Therefore, they expect lecturers to give more extended deadlines and provide opportunities to provide remedies.

Maintaining positive communication and tolerance is one of the atmospheres expected by the students. They perceived this matter as a good teaching process. The analysis results show that students assume that the lecturers who build mutual respect have mastered the PK. The concept of positive communication indeed shows respect and the close relationship between educators and students. The students perceive the TPACK by imitating what the lecturers say in communication. Therefore, the PK can even be imitated by the students unconsciously in the form of mutual respect [14].

Students prefer to have various teaching activities and imitate the domains of TPACK that the lecturers have. However, the proper use of the platform and the practical knowledge needs to be taught to the students. Moreover, the student's perspective can be the indication and measure of their educator's TPACK level. Another researcher's statement in his study mentions that investigating the EFL teachers' TPACK practice is a significant way to encourage effective technology implementation into EFL teaching [6]. The lecturers' role is to help their students to perceive the TPACK in learning. Meanwhile, the students will have their way of perceiving the TPACK in their learning [15]. As a result, the TPACK perceived by the students can generally be proportional to each primary domain of TPACK in their learning (TK, CK, PK). This study also suggests other researchers investigate other factors that possibly give another overview related to the fulfillment of TPACK in learning.

4. CONCLUSION

This study revealed that students' engagement in online learning is closely related to the abilities of lecturers as facilitators in managing and facilitating the implementation of quality online classes. The sophistication of digital technology does not primarily determine the quality of online classrooms. Preparing

simple modules, providing teaching input, giving full attention to students' learning progress, providing motivation to students to learn by constantly reminding them, and building mutual respect between each other in online classes through good communication are non-technical factors that play a significant role in encouraging them to learn in emergencies. The lecturer's role as a facilitator is the most important determinant of student learning success, not the sophistication of technology.

Although students' positive perception on the fully online program is quite obvious in this study, educators have to be fully aware of the potential negative effects, unexpected psycho social phenomenon, resulted from high screen time and limited social interaction. The ability of lecturers to adapt to this technology is quite diverse, given the varying levels of readiness and skills to teach with technology plus the rapid transition to online mode. Students view that improving the quality of teaching, content, and pedagogical aspects is essential. Thus, lecturers must continuously self-reflect, pay attention and maintain the balance of all their TPACK elements. Moreover, the findings of this study should be taken with caution due to its limited research samples.





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BIOGRAPHIES OF AUTHORS






Daniel Ginting     received his doctorate in English Language Teaching from State University in Malang (2015). He is currently a teaching staff at English Letters Study Program, Universitas Ma Chung. He is a member of the IMOO (Indonesian Massive Open Online Course) and a MOOC instructor in 2018. In 2020, he and a team of lecturers from State Surabaya Technology Institute University of ITS Sepuluh November developed the Massive Open Online Course for Non-academic staff. He can be contacted at email: daniel.ginting@machung.ac.id.






Fahmi     is a researcher in the field of English Language Teaching. He graduated from the Faculty of Education, Universitas Ahmad Dahlan, in 2017 (Bachelor's Degree). Then, he graduated with his master's in English Language Education at the same institution in 2020. He had completed his thesis entitled "Developing resourceful teacher's textbook as a complementary material of English student's textbook for eighth graders of Junior High School published by Ministry of Education and Culture of Republic of Indonesia." He can be contacted at email: fahmi1300004240@webmail.uad.ac.id.






Muhamad Hasbi    is an English education lecturer at IAIN Salatiga (2015 - present) whose teaching and research works have been specialized mainly in technology-enhanced language learning. He has been involved as a facilitator of Indonesian MOOC (2018) and American MOOC (2019-2020) and currently published three books (2020-2021) on the theme of technology integration in English language teaching. He can be contacted at email: muhammadhasbi.official@gmail.com.






Yusawinur Barella    is currently an English lecturer at Universitas Tanjungpura. She received her Magister degree in English Language Teaching from Universitas Negeri Surakarta, Solo, in 2014. She has been involved as a facilitator of ACCESS Microscholarship (2015-2017), and was responsible for an EPICX Camp for Kalimantan region, a program initiated by the My American Jakarta of the American Embassy, 2020. She can be contacted at email: yusawinurbarella@untan.ac.id.






Kadnawi    is a lecturer of English Education Department at Institut Agama Islam Hasanuddin, Indonesia (IAIH) at Pare, Indonesia. He received her bachelor degree in ELT at Kadiri Islamic University in 2010. Then, he received her master degree in ELT at Malang Islamic University in 2014. Kadnawi is the director of Language Center in his university (Institut Agama Islam Hasanuddin, Indonesia/IAIH). He is also the owner of DELTA English Course Pare Kampung Inggris and the Director at Stanford English School Pare Kampung Inggris. He is also active in an organization namely IELA (Indonesian English Lecturers Association) in Research division (2021-Present). He can be contacted at email: awi.ilyas85@gmail.com.



Ahmad Ridho Rojabi    is a lecturer at the English department of Universitas Islam Negeri Kiai Haji Achmad Siddiq, Indonesia. His major research interests include ELT, reading, vocabulary, and technology-enhanced language learning. He has actively involved in international conferences as a presenter (TEFLIN, CamTesol) and he was awarded as best presenter at seminar of translation and intercultural communication at State Polytechnic of Malang in 2019. He is currently pursuing his Doctoral degree at State University of Surabaya. He can be contacted at email: ahmadridhorojabi@gmail.com.



Ainu Zumrudiana    is a lecturer of Department of English Language Education at Universitas Nahdlatul Ulama Sunan Giri, Indonesia. She received her master degree in ELT at Semarang State University. In 2021, she published three books on Education. He can be contacted at email: ainunachrawi@unugiri.ac.id.

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