Review

Designing Synchronous and Asynchronous Activities for Interactive Learning

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ABSTRACT

This study aims to develop a model of interactive learning media by focusing on online activities with synchronous and asynchronous models to improve the quality of English learning. The study provides some discussion about preparing an interactive online learning by deploying various types of activities which group into synchronous and asynchronous activities. The method used in the research is research and development method which follows ADDIE model. The data collected from English skill class which include Elementary Reading and Writing and Elementary Listening and Speaking. The result of the study shows effective model for developing interactive medias for teaching English skill. It is very important to design learning activities aligned with the learning outcomes and learning objectives. To create an effective online learning environment, teachers should consider about the interactivity of the learning activities and the mode of content delivery. Both synchronous and asynchronous activities have benefits and drawback. Hence to get a maximum benefit of online learning, teachers need to combine synchronous and asynchronous activities and design which activities should be delivered in each mode.

1. INTRODUCTION

Covid 19 has affected almost all aspects of human life, including the education aspect. During the pandemic, face-to-face learning is abolished and replaced by online learning. This certainly affects the pattern of teaching and learning and the quality of learning outcomes. In the implementation of online learning, several obstacles are often found, such as lack of student attention, limited access to online learning materials, lack of teacher control over the quality of learning, and of course technical obstacles related to the implementation of online learning (Adedoyin & Soykan, 2020; Barrot et al., 2021; Yuzulia, 2021; Zalat et al., 2021).

Online learning is a learning model by utilizing the internet network. Through online learning, the implementation of learning can be done virtually without having to carry out face-to-face meetings. This is of course very much in line with the Covid-19 conditions which require restrictions on direct interactions (Barrot et al.,

2021). In practice, learning can be carried out synchronously (Synchronous) and asynchronously (Asynchronous). In the synchronic model, teachers and students must attend online classes at the same time. One of the synchronous learning activities that are often used today is the use of web conferences or web meetings, such as the use of Zoom meetings. In contrast, in the asynchronous model, teachers and students do not have to be present at a certain time for online classes. Teachers can prepare various learning media and then add them to online learning applications, such as Google Classroom, Edmodo, Moodle, or other media that allow students to access learning materials. The selection of online learning implementation models, either synchronous or asynchronous, is closely related to the expected learning outcomes and will certainly affect the quality of learning outcomes (Amiti, 2020; Fabriz et al., 2021; Perveen, 2016).

Related to the low quality of online learning, this is due to a one-way learning design that only

focuses on explaining learning material from the teacher directly through web meetings, such as using zoom meetings. In addition, it is not uncommon for students to learn independently through learning media in the form of books, modules, or videos that are less interesting. As a result, student participation in the learning process decreases and affects the quality of learning. Therefore, it is necessary to design a more effective learning by focusing on the development of interactive learning media so that students can actively interact with learning materials and can improve the quality of learning (Agostinho et al., 2011).

Learning media are all devices that allow students to gain knowledge, expertise, or understanding to achieve learning objectives. This device can be in the form of people, equipment, instruments, documents, or other materials that support learning (Heinich, 2002). Regarding the online learning model, learning media can be adapted to synchronous and asynchronous models. In the synchronous model of learning media that can be used, such as the use of web conferences (Zoom meetings, Google Meetings, Webex, Youtube Live) or the use of chat services (Whatsapp, Telegram) where teachers and students are present virtually at certain times. For the asynchronous model, there are many choices of activities that can be used such as learning videos, group projects, discussion forums, journals, blogs, wikis, quizzes, and many more. In this asynchronous model, students can access learning media more flexibly without having to be tied to a certain time.

The term interactive learning, of course, has often been heard, especially in the field of education. Interactive learning aims to provoke students to be active and involved in the learning process and is usually identified with the use of technology (Sessoms, 2008). This learning model is certainly different from the traditional model which only focuses on the delivery of learning materials by the teacher. In other words, interactive learning focuses on student activity in the learning process (students center learning). Sessoms (2008) compares the traditional learning model and the interactive learning model. In interactive learning, the focus of learning activities is on student activity (Student-centered learning) where the learning target is able to stimulate multi-sensory. By utilizing technology, interactive learning models allow the use of varied learning methods by utilizing various

learning media and collaborative learning. With this interactive learning model, students are more active and proactive which allows the exchange of information either from teacher to student, exchange of information between students, or exchange from student to teacher.

Interactive learning is closely related to the technology used in the learning process. Of course, the rapid development of technology also triggers the development of learning technology. Currently, there are many technological models that can be implemented in increasing student activity in accessing lessons, such as collaboration applications, virtual reality, simulations and so on (Handoko, 2021).

The interactive learning model can basically be implemented in face-to-face learning and online learning. In face-to-face learning, interactive models can be implemented in various classroom activities that allow students to interact with learning content through various learning media, such as the use of teaching aids, role playing, simulations, or discussions. Likewise in online learning, various activities centered on student activity can be designed in such a way that students can interact with learning media and interact with other students. With active interaction with class content and participants, students are expected to gain learning experiences and be able to conclude or take lessons from their learning experiences.

The current studies discuss the instructional design for interactive learning by focusing on the synchronous and asynchronous activities. It is expected that the study could provide alternative designed to deliver interactive contents in online learning.

2. METHOD

The current discussion focuses on research and development approach for instructional design. The instructional designs used in the current research were taken from two classes, Elementary Reading and Writing and Elementary Listening and Speaking, in English Department Andalas University. The research follows ADDIE model which includes analysis, design, development, implementation, and evaluation. In the analysis stages, the researchers provided discussion about the objective and the learning outcomes of the subject. Then in the design stages, the researchers discussed how to design learning material and media

for interactive online learning by focusing on the synchronous and asynchronous activities. The next step is development stages where the researchers discussed how to develop an interactive media for learning English skills. In the implementation stage, the researchers showed how the interactive used in the online class. The last step is evaluation where researchers discussed how to evaluate the implementation of the instructional design of interactive learning for English learning.

3. DISCUSSION

Analysis of Interactive Online Learning Using Synchronous and Asynchronous Activities

The first stage of designing the instructional design is analysis. In the context of English learning, this step includes the analysis of learning outcome and how to design learning activities to achieve the learning outcome. Learning outcomes is very important to consider when designing an instructional media for online learning. Each outcome should be equipped with learning activities to achieve the outcome. Table 1 shows the result of example of analysis stage for Elementary Reading and Writing.

Table 1. shows that each outcome should be distributed through various activities, such as

reading material, video, quiz, and peer review. These kinds of activities should be well-designed to achieve the learning outcomes. Tables 2 shows the similar analysis for Elementary Listening and Speaking.

In the analysis stages, it is also important to consider about the available resource to make sure learning activities can be delivered. The resource includes people, tools, instruments, devices, etc. There are several fundamentals question for preparing learning activities:

- Who will design and develop the learning activities?
- What resource available to produce the learning activities?
- How to deliver the learning activities?

Listening skills for example required a set of devices to practice, such as video player, speaker, and headset which usually available in the computer lab. When considering about the use of instructional video, who will create the video, do they have skills and equipment to produce the video? do the school have video player and TV or set of computers to display video? Moreover, when analysing the learning activities, time allocation also needs to be set properly. How long the students

Table 1. Analysis stage for Elementary Reading and Writing

No	Learning Outcomes	Learning Activities
1	Students are able to write reading report of various simple text in English in written form	Reading material, instruction video, quiz, assignment, peer review
2	Students are able to use simple English structure correctly in writing	Reading material, video instruction, quiz, assignment, group discussion
3	Students are able to demonstrate strategies for adding and developing new English vocabulary	Reading material, video instruction, assignment, role play
4	Students are able to use the new vocabulary correctly in writing	Quiz, assignment, peer review

Table 2. Analysis stage for Elementary Listening and Speaking

No	Learning Outcomes	Activities
1	Students are able to comprehend and reproduce formal and non-formal expression in English	Reading material, instructional video, assignment
2	Students are able to understand and respond to simple spoken instruction	Reading material, quiz, assignment, peer review, simulation
3	Students are able to improve their English pronunciation	Instructional video, assignment,
4	Students are able to communicate in various levels of politeness in English	Reading material, instructional video, simulation
5	Students are able communicate and express thought relating to daily activities.	instructional video, simulation, assignment, role play

need to complete the specific activities? How long it will take to provide feedback for students' activities? By the limitation of time allocated for a meeting, sometimes the learning activities cannot deliver properly, especially in the face-to-face meeting or synchronous activities.

Online learning provides some solution regarding to the resource of learning activities. Through Learning Management System (LMS), teachers can deliver various learning activities online. By the advanced of technology, the students now can access the LMS via their smartphone which allow them to learn anytime, anywhere. They also have flexible time to access the learning activities. Teachers can provide immediate feedback to students' activities without waiting to all students completed their activities.

Design and Development Interactive Online Learning Using Synchronous and Asynchronous Activities

In online learning, the various learning materials or learning media. Beside textbooks or modules, teachers can distribute various learning materials to students and of course more up to date, such as website pages, videos, audio, animations, or more comprehensive materials such as SCROM packages. They also can update the learning materials and adapt to the students' needs.

To design interactive teaching materials, of course, teacher must apply the interactive aspects which have been discussed in the introduction. One of the main aspects in developing interactive teaching materials is student participation. Teachers must design teaching materials that can invite students to actively interact with the content. Students are not only reading or watching videos, but also actively interacting with content with various instructions that you have prepared. In addition to cognitive abilities, interactive learning content can certainly improve students' psychomotor abilities.

There are various activities that can be designed and implemented in the online learning, such as assignments, group work, discussions, simulations, role play, and so on. The following are some of the concepts and models commonly used in the development of learning activities.

Small Group Discussion

The Small Group Discussion model allows students to share knowledge, experiences, ideas, information, and so on. In online learning, this model is very possible to do by utilizing various applications, both free and paid. Some of the applications that can be used for group discussions can be synchronous and asynchronous activities. The synchronous activities can be delivered via chat or video conference. Some chat application, such as Whatsapp, Telegram, Google Hangout, allow students to discuss synchronously through text services. Moreover, video conference applications, such as Google Meeting, Zoom, MS Teams, Cisco Webex, Big Blue Button, allow students to have online meetings to deliver to discuss about the specific topic. As an alternative to synchronous discussion, teacher can provide an asynchronous discussion via online forum. LMS usually provided discussion forum for students to discuss.

Role-Play & Simulation

This model allows students to learn by role playing and imitating movements/models/patterns/procedures. In online classes, teacher can add various animations, simulations, and even virtual reality to provide a real learning experience. Animation 2D, 3D, augmented reality, virtual reality.

Case Study/Contextual Learning

This model is one of the most widely used models. Through this model, students can learn through real events that occur. In the context of online learning, this model can be used by utilizing the Workshop feature, where students can provide their perceptions about certain cases and then the results can be reviewed by other students.

Discovery Learning

This model is almost similar to Case Study, but in the discovery learning model, students actually go into the field to conduct searches, research, and proof. With this model, students can conclude for themselves the learning experiences they have gained during the search. In online learning, discovery learning models are often distribute via assignment

Self-Directed Learning

The self-directed learning model allows students to learn independently by participating in specially designed learning activities. You may be familiar with interactive learning CDs and tutorial videos. One of the most popular applications is Macromedia Flash which later changed to Adobe

Flash. In addition to flash, currently there are also many choices of Authoring Tools applications, such as Articulate 360, Adobe Captive, Lectora inspire, iSpring, and so on with various very interesting features. In addition, many mobile applications have been developed, such as Duolingo. Moodle can also be used as an alternative implementation of the Self-directed learning model by utilizing the SCORM and Lesson (Adaptive learning) features.

Cooperative Learning

Cooperative learning model allows students to learn in teams with the same task for a common goal. Currently, there are many applications that can be used to implement Cooperative Learning models, such as Pedlet, Lino, Wakelet, Dotstorming, and Flipgrid.

Collaborative Learning

Collaborative Learning model allows students to learn together in teams with different task loads. Students are asked to be able to work together to complete certain tasks. There are many applications that can be used to implement this model, ranging from simple ones, such as Google Docs, to complex ones, such as Microsoft Teams and Trello. Moodle also provides features to support the Cooperative Learning model using Wiki features.

Problem Based Learning

The Problem Based Learning model provides a learning experience to students through problems which then look for solutions by conducting searches and investigations. In online learning, this model can be implemented by utilizing the Assigment feature.

Project Based Learning

The project-based learning model is a very comprehensive learning model because it involves various aspects and requires quite a long time. Learning based on targets and planning. In online learning, the implementation of the Project Based Learning model can be done through applications such as Microsoft Teams, Microsoft Project, Trello, Goals, Evernote and Figshare.

After knowing about the various learning activities that can be delivered online, teachers should design how to distribute the activities based on the learning objectives.

In online learning, there are two models of learning delivery, asynchronous (asynchronous) and synchronous (synchronous). In asynchronous learning, learning activities are not limited to place and time. This means that lecturers and students can be in different places and at different times. This model allows students to learn independently and not fully depend on the teacher (Bernard et al., 2004; Clark & Mayer, 2016; Murphy et al., 2011; Xie et al., 2018). However, this learning model requires rich and varied learning media (Blau et al., 2017; Daft & Lengel, 1983). This learning media demands direct feedback, transmission of verbal and nonverbal communication, personalization of content, and natural language stimulation (Blau et al., 2017). Related to natural communication, of

Table 3. Designing Learning Activities for English Learning

No	English skills	Synchronous activities	Asynchronous activities
1	Reading	• Group discussion (Using chat, video meeting, forum) • Online Quiz	• Self-directed learning (reading textbook, watching video) • Discovery learning
2	Writing	• Group discussion • Online quiz	• Self-directed learning • Cooperative learning (brainstorming ideas, wiki) • Collaborative learning (Peer review, forum) • Problem-based learning (Assignment)
3	Listening	• Simulation (audio/video) • Online Quiz	• Self-directed learning • Simulation • Project-based learning
4	Speaking	• Group discussion • Role play	• Simulation • Collaborative learning • Project-based learning (Assignment)

course this is a challenge because of course it is very difficult to transform direct communication into indirect communication, when providing feedback and learning motivation (Hartnett, 2015). In addition, in online learning, students must also be equipped with good technology mastery skills so that they can complete learning activities (Kim et al., 2019). Several previous studies have shown that this asynchronous model is very suitable for learning that focuses on improving cognitive abilities (Garrison, 2011; Hrastinski, 2008; Ogbonna et al., 2019).

In the synchronous model, the online learning process can be carried out at different times but must be within a certain time span. This model is widely used today, where teachers and students communicate directly through online media, such as video conferencing (Zoom meeting), video calls (WhatsApp), and other media that allow real time communication (Blau et al., 2017). With a model like this, there is natural communication in the process of implementing online learning, including providing learning feedback and motivating students. Several studies show that the synchronous learning model shows positive results, especially for practical abilities. However, the use of this synchronous model is not suitable for activities that require complex discussions and require deep contemplation (Hrastinski, 2008). In this model students also have limited time in understanding the learning material because the material is given directly with limited time. In addition, students' focus when participating in synchronous learning can be disrupted by various other activities and teachers cannot control the activities of lecturers personally (Rapanta et al., 2020). For example,

when conducting a video conference where students are only passive listeners, they may do other things, such as listening to music, watching other videos, accessing social media, chatting, or other activities that can distract students' focus. Another problem that is often encountered in the implementation of synchronous online learning is technical problems (Xie et al., 2018), such as internet connection problems, device interference, or environmental disturbances that can hinder the learning process and disrupt the concentration of students and teachers. Therefore, to increase the effectiveness of online learning, it is necessary to combine synchronous and asynchronous learning. Teachers need to use synchronous or asynchronous models which align to the learning outcomes and learning objective.

Implementating Synchronous and Asynchronous Activities in Interactive Online Learning

The next stage of designing instructional design is implementing the design and learning media that have been developed. In this stage, teacher can group the interactive learning into learning material and learning activities.

Learning materials

These content groups are materials that will be studied by students to improve their understanding of the topics presented. The delivery of learning materials can be in the form of static content, such as text, or interactive content in the form of animation, audio, video, SCROM, and so on.

In the context of teaching Elementary reading and writing, various teaching material can be provided for the students to learn. Interactive

Figure 1. The use of interactive book

content can be deployed in the Learning Management System (LMS) in various formats, such as interactive book, animation, instructional videos.

Figure 1 shows the use of interactive books to deliver integrated books. Instead of uploading the textbook in pdf or Microsoft Word format, teachers can create an interactive online book which can be elaborated with various activities. Figure 1 shows that students can interact with the content by choosing different topic of text and can access the questions directly from the pages. This is very helpful for students, especially for self-directed learning, to engage with the content and enjoy online learning.

Beside interactive books, teachers can also use instructional video to deliver the learning materials. Figure 2 shows two options for instructional videos. Figure 2a is a traditional video in which the students need to watch the video from start to finish. Figure 2b is an interactive video in which students can interact with the content of video. Teachers can add the question, explanation, or link for students to highlight during watching the videos.

The use of interactive video is very helpful to engage the students in the online learning. Instead of passively watch the video and get bored, students found more interesting activities such as answering the questions, providing comment, clicking the URL, and some other activities embedded in the video. When the video plays in the specific time frame, a pop-up massage appears, it can be a question, picture, links, another media. The video will be paused, and students need to take action, either to answer the question or to do specific instruction set by the teacher. This immediate action can be used to check students understanding, to prompt their knowledge, or to take certain action to get a further reading explanation.

Beside the asynchronous activities as mentioned above, teacher can also use synchronous activities, such as video meeting. The use of video meeting can be used to deliver the learning materials via teacher instruction, group discussions, or group presentations. Figure 3 shows the use of online video meeting to deliver learning materials.

Figure 3 shows how teacher can deliver the learning material through direct presentation. Students can follow the explanation and interact with the teacher directly. Synchronous meeting allows teacher and students to maintain the communication. Students can directly ask the
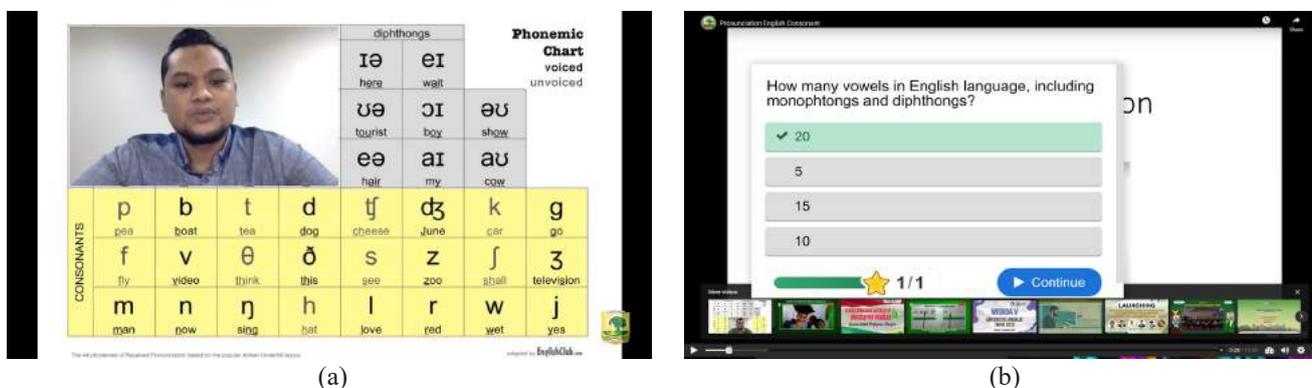

(a)   (b)

Figure 2. Using video for online learning

Figure 3. The use of video meeting in online learning

question and get immediate feedback from the teacher. Although this kind of activities is really helpful, but teacher need to consider some technical issues, such as internet connection and time consumption for the online meeting.

Learning activities

Learning activity groups contain activities carried out by students to improve their competence, such as discussions, simulations, exercises, assignments, making reports, or other activities. In the online learning, learning activities have been developed rapidly over time. There are numerous of learning activities that can be deploy in the Learning Management System or in the stand-alone application, such as discussion forum, peer review, survey, collaborative works, and some other interesting activities. The following example is the use of peer review activities where students can grade others' essay.

(a)

(b)

(c)

Figure 4. The use of peer review activities in online learning

Figure 3 show the use of peer review activities in Elementary Reading and Writing class. Beside writing their own writing, students also assigned to give feedback for others writing. Figure 3a shows the student writing as a response to the teacher instructions. Then, after the writing submitted, the teacher can assign the other students to grade and give feedback for the writing. Teacher can provide a rubric help student grading their friends writing and at the end of review steps, students can provide general feedback for the writing. This interactive activity is helpful to develop critical thinking skills and give a deeper understanding of the topic.

Other activities that can be adopted to interactive learning include assessments, both formative and summative assessments. For synchronous activities, there are many options available to assess the learning progress. Among other things is the use of online quiz to assess student learning progress. Figure 5 shows some alternative of interactive quiz to help teacher assess their student's progress.

Figure 5 shows a various aspect of online quiz that can be deploy in the online learning. Figure 5a shows how the quiz can be equipped with audio. This is very helpful to assess students listening skills. In the traditional model, the quiz and the audio are separated in the different media, the quiz is distributed in the printed book and the audio is distributed via audio CD. By using interactive quiz, students can access both quiz and the supplementary file in one media. For learning purposes, teacher can enable the audio control to help students pause and repeat the audio. Figure 5b shows alternative assessment using a video. Here, students should watch the video and can answer the questions provided based on the video.
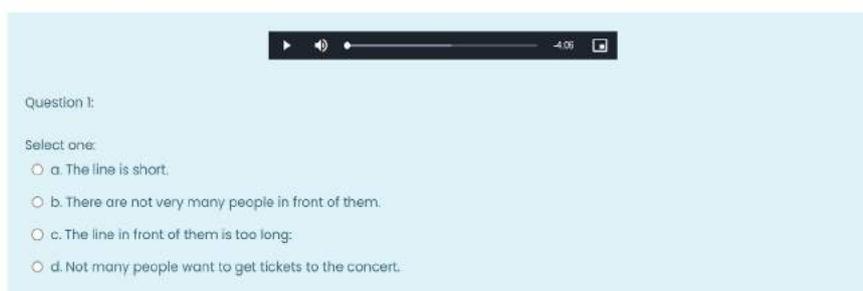
(a)
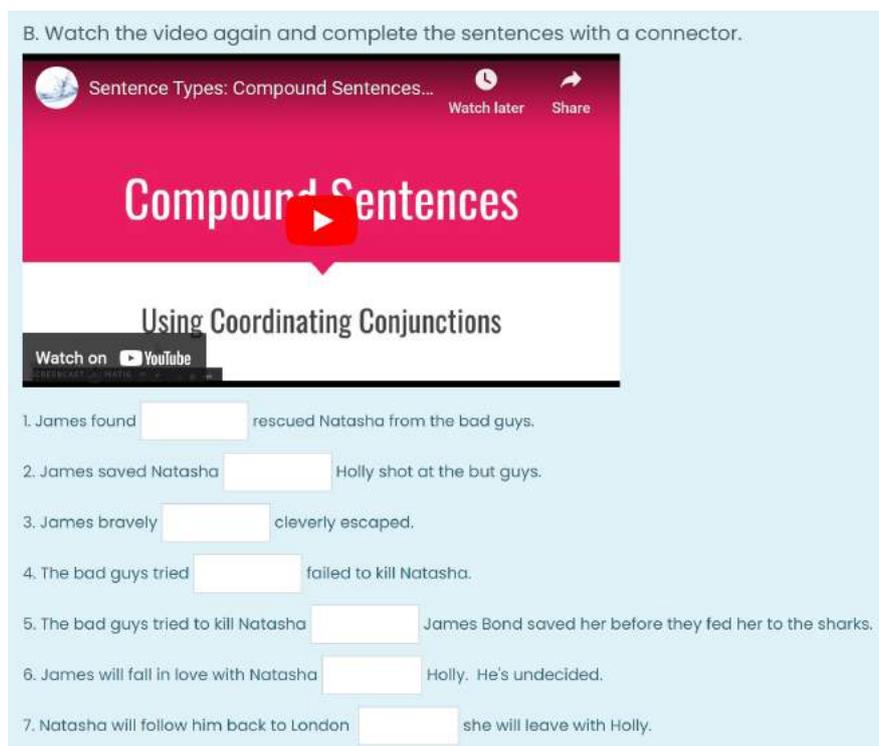
(b)

Figure 5. Media embedded in the quiz

I. Read this paragraph about Jack Collins. Decide which person is most like Jack. Then answer the questions.

Jack Collins

1. Jack Collins is the most amazing person I have ever met. 2. He came to my school and talked about his difficult life in prison. 3. He was in prison for 15 years. 4. He made a lot of mistakes when he was young, but now he has changed his life. 5. He saw a lot of violence in prison, so he uses his experience to help high school students. 6. Jack is tall and strong. 7. He also looks a little scary because he has some spider tattoos. 8. The thing I remember most is his sensitive personality. 9. He really wants to help young people. 10. I've never met anyone like Jack before.

1. Which sentence is the topic sentence? ⬍

2. Type in the topic ___ and the main idea ___

3. Which sentences tell about Jack's personality? Type in the number ___

4. Which sentences tell about Jack's physical appearance? ___

Figure 6. The use of various question types in a quiz

The quiz also can be enhanced by using image and various types of question. Teacher can use drag down question, matching, summary, and some other challenging questions.

Figure 6 shows how to embed images in the quiz. The types of questions including multiple choice, drop down, and short answer questions. There are numerous types of questions that can be used to assess the students using quiz. Quiz is considered as synchronous activities because students need to complete the quiz in the specific time. This kind of activity is frequently used to assess students' learning progress because it is simple and easy to grade. One of advantage of quiz is automatic grading. This feature allows the system to grade the student's submission immediately after they complete the quiz. To some extent, the system can also provide general feedback and detail feedback right after the students done with the quiz. This is very helpful to maintain the communication with the students regarding to their academic performances.

For the asynchronous assessment, there are also number of activities available to deliver an interactive online learning. Assignment is one of the alternatives that can be used to assess students' progress. Online assignment is a flexible mode of assessment which can be adjust with various assessment criteria. It can be used for various activities, such as simulation, role play, problem-based learning, or project-based learning. Figure 7 shows how to deploy an interactive assessment using assignment mode.

Figure 7 shows how to design an assignment for speaking test in online learning. Figure 7a indicates the detail information about the due date and remaining time for speaking assignment. To some extent, the instruction can be equipped by grading criteria, especially for rubric grading. Figure 7b shows the response of the students in form of video which also provides information about the submission. Figure 7c shows the how teacher can provide feedback to the students' assignment. In oppose to the quiz grading, assignment require manual grading in which teacher check the assignment and input the grade and the feedback manually for each assignment. In the advanced grading, teacher can use rubric grading to give a detail information for each grading component. The use of assignment can be considered as asynchronous activities since students can access the assignment anytime during the given date. It is helpful for students because they can prepare the best response for the assignment. However, for the teacher, assignment require extra work, especially in grading the assignment and providing feedback for each student's assignment.

As an alternative for speaking activities, teacher can also use social media to assess students speaking skill. Figure 8 shows the use of augmented reality from Snapchat to provide interactive speaking activities. This kind of activity

Speaking test

Please make a video of you answering the following question (3-4 Minutes)! Upload the video to Youtube and submit the link here.

Describe a person who often helps others.
You should say:
- Who the person is
- What the person does
- Why this person helps others
- And explain how you feel about this person

Grading summary

Hidden from students	No
Participants	37
Submitted	35
Needs grading	34
Due date	Wednesday, 26 October 2022, 10:00 PM
Time remaining	Assignment is due
Late submissions	Only allowed for participants who have been granted an extension

(a)

Submission

Submitted for grading
Graded
Assignment was submitted 7 days 7 hours early
Student cannot edit this submission

▶ Comments (0)

Grade

Grade out of 100

90.00

(b)

Feedback comments

Good, your pronunciation is very clear. However, you need to improve your speaking by using proper expression and body language.

(c)

Figure 7. The use of assignment in interactive online learning

Figure 8. The use of augmented reality in online learning

is interesting for speaking because it can reflect a real skill of student in responding to random questions. Within the limits of time given, students cannot prepare the answer for the question and should immediately answer the question after the image stop.

There some more interactive activities that can be delivered on the online learning platform, either synchronous or asynchronous activities. The use of interactive activities can provide a new experience for the students in online learning. It is very important to design the online activities based on the learning outcomes and learning objective. Different outcome and objective may require a different activity. Besides, it is also important to consider about how to deliver the activities. Some activities should be delivered synchronously to get a maximum benefit of the activities while some others should be delivered asynchronously.

Based on the discussion above, it can be figure out that in designing the interactive content for online learning, there are several steps that should be taken. First is analysing the learning needs which reflected from learning outcomes and learning objective. Then the learning needs should be elaborating into learning activities which distributed in learning outcomes or learning objective. There are so many learning activities available in online learning, some of them can be delivered using synchronous, such as group discussions and video meetings. Some other

activities are more flexible and can delivered using asynchronous activities, such as collaborative activities, simulation, and project-based learning. Teacher also needs to consider about the learning assessment as well. Online learning also provides many solutions for assessing students skills, such using quiz and assignment.

In terms of implementing interactive learning in teaching English, which includes four main skills (reading, writing, listening, and speaking), teachers also need to choose a proper activity based on the objective of each skill. In reading skill, some synchronous and asynchronous activities are applicable, such as group discussions, video meeting, discovery learning, online quiz, and assignment. For writing, interactive activities can be deploy to the LMS such as cooperative learning, collaborative learning, project-based learning, group discussion, quiz, and assignment. In the listening skill, the number of activities is quite limited, such as quiz, and video instruction. Speaking skill has many alternatives including role play, simulation, group discussion, project-based learning, problem-based learning.

4. CONCLUSION

Interactivity in online learning required well-designed learning activities to get a benefit of the online learning. From the discussion above, it can be summarized that interactive learning requires three components: engagement, collaboration, and critical thinking. Regarding to engagement, interactive content should be able to invites student to interact with the learning activities. Collaboration allows students to participate in interpersonal activities which can be assigned to various activities in interactive online learning. Moreover, the interactive learning also should be able to develop critical thinking to help students analyse, summarize, and contemplate what they have learned. All these components could be delivered through learning activities that can be distributed in synchronous and asynchronous activities. Teachers need to choose a proper activities in line with the learning outcomes and learning objective.

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