Development of the Massive Open Online Course (MOOC) Module for English for Academic Purposes Course

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Article Info	Abstract
  *Corresponding author: rahman@untirta.ac.id	This study intends to develop Massive Open Online Course (MOOC) Module for English for Academic Purposes Subject at Sultan Ageng Tirtayasa University. The MOOC aims to equip learners, regardless of department, faculty, or participating campus, with the necessary English language skills to succeed in an academic environment. In order to improve the effectiveness of online learning from these courses, an e-learning platform, such as MOOC, that can accommodate a large number of students from departments and faculties, as well as from other campuses that are members of the Study Program Implementing Collaborative Free Learning Curriculum - Independent Campus". The MOOC is developed through Analysis, Design, Development, Implementation and Evaluation (ADDIE) model that is organized systematically to address issues with learning that relate to instructional media that meet students' requirements and personality traits. A questionnaire was used for evaluation, and the elements were taken directly from the Computer System Usability Questionnaire (CSUQ). The ADDIE (Analysis, Design, construction, Implementation, and Evaluation) approach was used to guide the construction of the MOOC in this study, and the results of the usability evaluation add to the body of knowledge already available on MOOCs. The MOOC achieved a very good rating with an average score of 82.66%, indicating it effectively meets these quality standards. The average score of 78.50% translates to a good rating, indicating a positive user experience with the MOOC. When respondents were asked to comment on the MOOC's strengths the capacity to make students' learning easier emerged as the most prevalent.

INTRODUCTION

The Covid-19 pandemic has had an impact on digital transformation in the realm of education, particularly in teaching and learning activities. This activity is carried out asynchronously, which means that the lecturer and students are in various locations at different times. Lecturers do not interact directly with students, deliver material, provide assignment instructions and administer assessments. This can be a barrier to meeting the desired learning objectives. However, different attempts were made to ensure that the learning process worked smoothly to fulfil the learning objectives (Irawan et al., 2022). Massive Open Online Courses (MOOCs) are one option. MOOCs are open online learning systems designed to filter learning interests. MOOCs, which first appeared in 2008, are a type of technology-based education that is rapidly being used by the wider community (Lu et al., 2018)

MOOCs are essentially online lectures with a large number of interactive participants. MOOCs are similar to virtual universities in that students can select classes based on their interests. Students listen to the information presented, study the supporting material offered, and complete the tasks that must be submitted by a certain time (Puspitasari et al., 2020). The benefit is that the majority of these online courses are free. Students merely need to register; there are no other requirements. They pursue this course since it is not time-bound. Participants can attend lectures whenever they choose as long as they have internet access. MOOCs are becoming increasingly popular as a result of the factors listed above. MOOCs offer more assured promise for education that is more accessible and inexpensive to the general public (Aldahmani et al., 2020).

The world of education is becoming more dynamic as more people make use of MOOCs. Similarly, institutions that provide MOOCs, including the range of lectures available through this facility. Given this trend, it is expected that the use of MOOCs in learning would become more common in the future. Using e-learning platforms such as MOOCs can help to improve the effectiveness of online learning. This is consistent with the vision stressed in the independent learning campus program of preparing graduates who are resilient in dealing with social, cultural, workplace, and technological changes that are growing rapidly in the current 4.0 revolution era (Laurillard & Kennedy, 2020). The era of Revolution 4.0 provides access to very broad information that students can use to improve their abilities. Multimedia-based content such as videos from Tedx, and YouTube, as well as audio content such as Podcasts

from various podcast directories such as Google Podcasts, iTunes, and so on provide many choices for students to enrich and add to their knowledge and improve skills related to their scientific fields.

In addition, the ability to access internationally accredited and Scopus-indexed journals as well as other reading references that can enrich students' knowledge and written works, as well as the ability to communicate fluently using an international language is very much needed. For this reason, the readiness of the study program is needed in designing a curriculum that suits the needs of prospective graduate students by this vision. The suitability and readiness of the curriculum devices in meeting the needs of students related to English proficiency, as described above, can be realized by the development of the English for Academic Purposes course through the Merdeka Belajar - Merdeka Campus curriculum which can accommodate students massively from majors and faculties in Sultan Ageng Tirtayasa University, or from other campuses that are members of the MBKM program.

The development of the MOOC module for English for Academic Purposes (EAP) aligns with the broader goal of designing a curriculum that meets the needs of prospective graduate students in the way it focuses on core EAP skills like academic writing, reading comprehension, research skills, and critical thinking. These are precisely the abilities required for success in graduate programs, where students are expected to effectively communicate complex ideas, analyze academic sources, and conduct research. By mastering these skills through the MOOC, prospective graduate students gain a strong foundation for navigating the demands of graduate studies. In addition, The MOOC format, delivered through the Merdeka Belajar - Merdeka Campus (MBKM) program, allows massive open access to students across departments, faculties, and even collaborating universities. This ensures a wider range of prospective graduate students can benefit from the EAP training, regardless of their specific background or location.

Several studies have explored the effectiveness of MOOCs in EAP learning. Mısır, H., Koban Koç, D., & Engin Koç, S. (2018) investigated the use of a self-paced MOOC to improve Turkish EFL learners' academic reading skills. Their findings indicated positive learner perceptions and improvements in reading comprehension. However, the study acknowledged limitations, such as the lack of personalized feedback. Besides, Ding, Y., & Shen, H. Z. (2020) examined the use of MOOCs for developing EAP vocabulary in Chinese learners. The study found that MOOCs could be a valuable resource for

vocabulary acquisition, but learners expressed frustration with the lack of opportunities to practice spoken English.

Despite the various benefits of MOOCs, the costly and time-consuming manufacturing of this technology can be a source of concern and a barrier to educational institutions. As a result, it is critical to carefully plan the design and development processes to guarantee that the created MOOC required the least amount of effort and cost while still meeting the needs of the target user (Li et al., 2014). User happiness can be measured to improve the MOOC's quality. As a result, instructors who are unfamiliar with or have not used this technology yet might begin an early practice by using it as a supplementary learning tool for their students.

Another drawback of MOOCs is the limited opportunity for personalized interaction and feedback from instructors. This can be particularly challenging for learners who require individual guidance on writing, speaking, or specific academic skills. Furthermore, Effective MOOC learning requires a high degree of learner autonomy and self-regulation skills. Students must be able to manage their time, set goals, and navigate the learning materials independently. his can be a hurdle for students unaccustomed to independent learning styles. This paper describes the step-by-step process (using the ADDIE model) for creating a Massive Open Online Course (MOOC). It also discusses how the MOOC's usability was tested with the intended audience.

METHOD

Research and development (R & D) activities cover the development of learning innovations that are implemented. The result is learning media for Moodle-based of English for Academic Purposes courses in the form of an e-learning portal. The ADDIE methodology is applied in the creation of Moodle-based E-learning in this EAP course. The ADDIE paradigm was selected because the development process is well-organized, ideal for creating instructional learning media, and has clear objectives that the media being created must meet. The ADDIE paradigm also has the benefit of having straightforward development procedures and trial-and-error testing to ensure trustworthy media creation outcomes. The ADDIE model has spawned numerous alternative development models, including the Dick and Carey model, the ICARE model, the ASSURE model, and others (Chen, 2011). (1) Analysis, (2) Design/planning, (3) Development, (4) Implementation, and (5) Evaluation/feedback (Evaluation) are the steps in developing the ADDIE model. The development of this

model is organized methodically to tackle learning challenges related to learning media that are appropriate for students' requirements and characteristics.

The analysis stage, which involves the process of identifying issues through needs analysis based on expert interview techniques, is the first step in this model's five-step process. The next step is design, where material for MOOCs is created based on the findings of the requirements study. After that, go on to the production stage, where MOOC material is created based on the design from the design stage, including PPTs, videos, discussion questions, formative exams, and summative questions. After that, go on to the implementation step by putting the developed learning material into practice with a number of students. The evaluation stage is then completed in order to assess the MOOCs that have been created in the professional validation (Puspitasari et al., 2020).
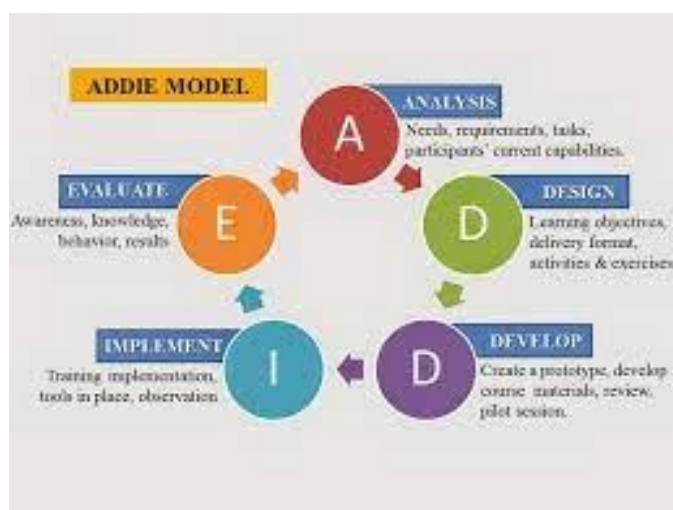

Figure 1. Research Design

This study was conducted in the even semester of 2022-2023 and took place at the Education Faculty of Sultan Ageng Tirtayasa University. Acted as the participants were ten students for the small group test and thirty students for the large group/field test consisting of students from various departments and faculties who joined the English for Academic Purposes course.

The instruments used in this study were questionnaires and validation instruments (experts and users). Questionnaires for experts at the validity testing stage were used to determine the level of correctness of the material, the depth of the material, the breadth of the material, suitability with the curriculum, and the suitability and feasibility of the media being developed. While the user questionnaire aims to see the level of

feasibility, ease of use and attractiveness of the resulting MOOC products. The test is given to find out how much influence MOOC has in helping students understand the material.

RESULT

Creating MOOC modules for the English for Academic Purposes course involves a number of steps, including analyzing and determining learning goals, creating interactions, assembling grading criteria, and creating synchronous and asynchronous attendance, and activities that support learning designs. In terms of learning planning, tasks include choosing platforms for learning, creating frameworks for learning, creating assessment plans, planning for creating videos, and creating resources.

1. Analyzing Learning Objective

Based on literature search activities and discussions with language teaching experts at Sultan Ageng Tirtayasa University, the researchers were able to identify the knowledge and skills that lead to the formulation of the learning objectives of the EAP course in general:

Learning objectives
EAP course is designed to improve students' ability to study effectively in English. The following are the knowledge and skills identified by the researcher:
    a. Read and understand authentic academic texts (reading and understanding authentic academic texts).
    b. Listening to lectures and presentations (listening to lectures and presentations)
    c. Writing sentences, paragraphs and various types of essays in English (writing sentences, paragraphs, and different essay types)
    d. Participating in seminars and group discussions (participating in seminars and group discussions)
    e. Preparing and giving simple presentations (preparing and giving simple presentations)
    f. Improving students' ability to record, think critically and work independently (improving student study skills such as note-taking, critical thinking, and working independently).
    g. Recognizing and using academic grammar and vocabulary (recognizing and using academic grammar and vocabulary).

2. Designing Interactions

a. asynchronous interactions

The creation of massive open online courses or MOOCs for learning EAP courses is essentially to prepare teaching materials that can be accessed online before

holding face-to-face meetings or live with the Zoom or Google Meet application. The following is a form of interaction that can be carried out asynchronously via the MOOC site that has been prepared.

1. Learning videos

    By utilizing the YouTube video-sharing platform, the researcher saves the learning videos and embeds the link on the MOOC page for participants to access and watch.
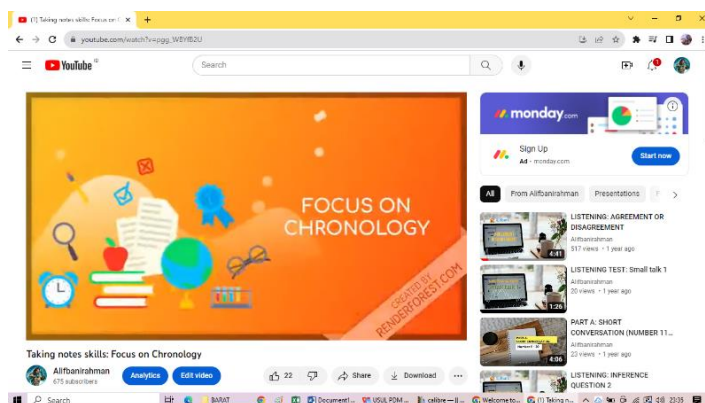

Figure 2. Learning video uploaded to Youtube

2. Interactive quizzes

    Interactive quizzes are needed to train students' skills in working on reading, listening, and grammar questions. The quiz is partly arranged in multiple choice form using the Google Form application.
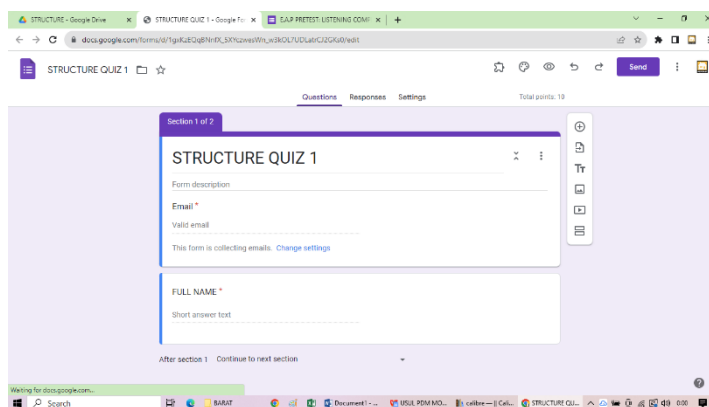

Figure 3. Sample of an interactive quiz

b. Synchronous interactions

Face-to-face learning is arranged according to the lecture schedule set by the university. Learning can be done online or by using the Zoom or Google Meet application, and offline in classrooms that have been prepared by the university based on the class schedule.

3. Developing Learning Planning

a. Choosing a platform

MOOC is online learning that requires adequate e-learning facilities and can be used and accessed by participants online. Therefore, in this case, the researcher did several things before determining which platform to choose. The steps that have been taken in preparing the e-learning platform to be used for this EAP eye MOOC include:

1. Registering the domain and website hosting that will be used

    The researcher chose a hosting service provider named e-Padi to determine the domain and rented hosting for 1 year. The domain with the name htpps://elearningengdept.com is the choice of researchers for the first step in creating an e-learning website.

2. Accessing cpanel to start installing the e-learning website on the domain elearningengdept.com/cpanel
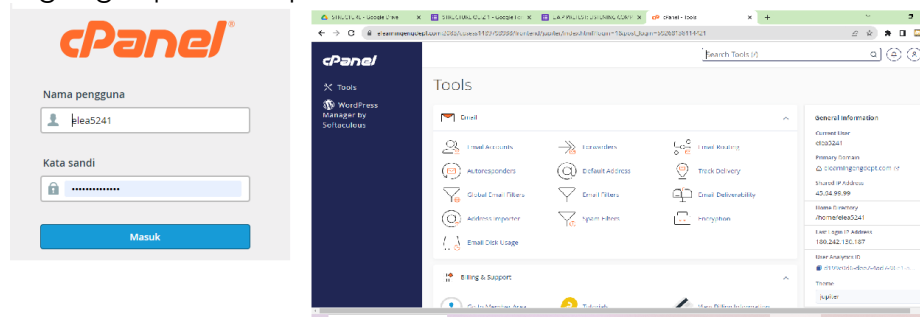

Figure 4. Access elearningengdept.com/cPanel

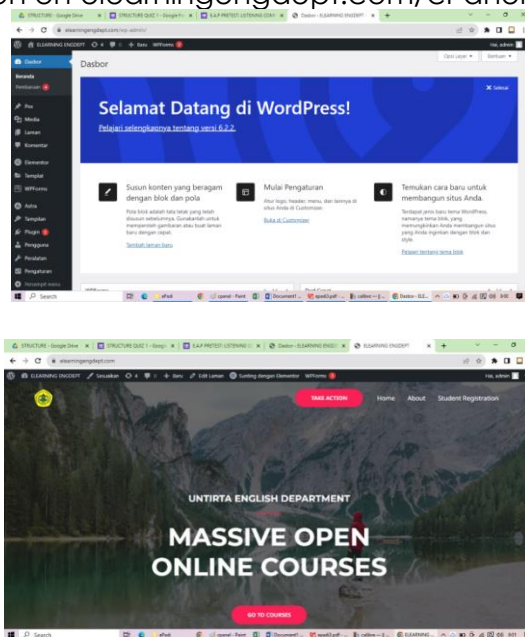3. WordPress installation on elearningengdept.com/cPanel

Figure 5. Installing WordPress as the "Home" start page for MOOC

4. Moodle installation as the platform chosen in developing e-learning modules for EAP courses in the form of MOOC
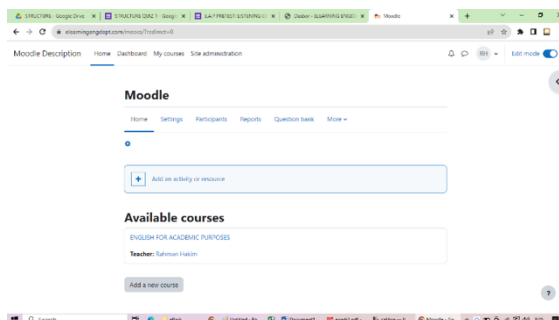

Figure 6. Installing Moodle as a MOOC platform

b. Developing course outlines

The material in this EAP is divided into four topics based on the language skills that must be mastered. The following are the lists of the outline on each skill.

Topic	Competency	Indicator
Academic listening	Short presentation	-Understanding main ideas in a presentation -Identifying word class to assist note-taking -Recognizing signposting in a presentation
	Lectures	-Understanding and taking note on key information -Understanding the language of perspectives -Identifying perspectives in a lecture
	Seminars	-Preparing to listen to a seminar -Identifying context -Using noun phrases in descriptions

Table 1. Course outline for academic listening

Topic	Competency	Indicator
Academic Speaking	Short presentations	-Talking about experiences using the past simple and present perfect -Structuring and signposting a short presentation -Presenting information about participant's academic experience and aims
	Seminar discussion	-Identifying perspective and stance in a discussion. -Understanding spoken and written definitions. -Asking for and giving definitions and short explanation -Participating in a seminar discussion

Table 2. Course outline for academic speaking

Topic	Competency	Indicator
Academic Reading	Textbook	- Giving an overview of an academic text - Identifying topics and main ideas - Understanding main ideas in paragraphs and longer texts - Identifying perspectives and stance in a text - Responding critically to stance in a text - Predicting the purpose of a text - Understanding main ideas

		- Recognizing cohesive language recognizing definitions, explanations, and examples

Table 3. Course outline for academic reading

Topic	Competency	Indicator
Academic Writing	Simple and compound sentence	- Expanding notes into sentences - Correcting and evaluating sentences - Writing simple and compound sentences
	Paragraph	- Analyzing paragraph structure - Recognizing cohesion in a paragraph - Writing topic sentences and concluding sentences
	Definitions	- Writing definitions using prepositional phrases - Writing definitions using relative clauses - Writing a paragraph that include definition

Table 4. Course outline for academic writing

c. Developing an assessment plan

Assessment is given using a pre-test instrument which is sent to participants in the form of a Google form which must be completed before beginning the course and a posttest after they have completed all of the course material.

4. Implementing the MOOC

At this stage, the teaching materials that have been prepared is used or implemented in real terms. Testing is also carried out in this stage. Testing is carried out on the MOOC which is developed by the researcher. The completed MOOC development project is tested on users to identify errors during the project development process. If an error occurs, a fix will be made before it is fully sent to the target user for use. All syllabi, activities, discussions, references and notes will be included in the MOOC platform at htpps://elearningengdept.com

5. Evaluating the MOOC

a. Feasibility Test Section

The feasibility test section consists of two stages, namely Implementation and Evaluation. After being developed, MOOCs are implemented by experts involving media, material, and language experts to assess and find out the feasibility and shortcomings of the MOOCs that are being developed so that they can be revised. After that, the media evaluation stage was carried out by making improvements to MOOCs based on expert judgment. The feasibility of the MOOCs that have been developed needs to be tested practically. This is done to assess the quality and feasibility. The feasibility test involved material experts, linguists, and media experts as respondents.

Media Feasibility Test Results

The media validation test assessment includes two aspects, namely (1) MOOC's visual and audio display and (2) software implementation and engineering. The results of the assessment of media feasibility on MOOCs conducted by media experts can be seen below:

No	Aspect	Question Item Number	Average Percentage of Eligibility(%)	Criteria
1	MOOC's visual and audio displays	1-10	80.00	Very good
2	Software performance and engineering	11-15	83.00	Very good
	Overall Average Score		82.50	Very good

Table 1. Feasibility Test Results by Media Experts

Six indications make up the visual and audio presentation portion of MOOCs: layout accuracy, design suitability, image clarity, text suitability, music suitability, and video quality. Based on the average percentage of the feasibility of each indicator of 80.00%. This indicates that the MOOCs media's audiovisual presentation satisfies the "Very Good" standard.

Media quality and media ease of use are the two measures that comprise software implementation and engineering factors. Based on an average percentage of feasibility for each indicator of 83.00%, this MOOC implementation and software engineering meet the "Very Good" criteria.

The results of the percentage of these two aspects obtained the results of the overall average feasibility assessment of this MOOCs of 82.50% with the interpretation of "Very Good".

Language Validation Test

Three components make up the language validation test: communicative MOOC sentences, effective MOOC sentences, and easily understood MOOC language. As needed, the assessment instrument is created in accordance with the applicable linguistic standards in the media. The following are the findings of the feasibility assessment of the language, as shown in the table:

No	Aspect	Question Item Number	Average Percentage of Eligibility (%)	Criteria
1	The effectiveness of sentences	1-5	83.00	Very good
2	Sentences on communicative	6-10	83.00	Very Good
3	Easy-to-understand language on MOOCs	11-15	84.00	Very good
	Overall score average		83.33	Very good

Table. 2 Feasibility Test Results by Linguist

The following summarizes the findings of the material and linguistic specialists' evaluation of the feasibility of MOOCs:

1. The effectiveness of sentences on MOOCs

   The average percentage of eligibility for each indicator is 83.00%, indicating that the effectiveness of the sentences on these MOOCs is "Very Good."

2. Sentences on communicative MOOCs

   The average percentage of eligibility for each indicator is 83.00%, which means that the sentences on MOOCs have been communicative by meeting the criteria "Very Good".

3. The language on MOOCs media is easy to understand

   The average percentage of eligibility for each indicator is 84.00%, indicating that the language in this MOOCs media is easy to understand with "Very Good" criteria.

   The results of the percentage of these three aspects obtained the results of the overall average assessment of the feasibility of the MOOCs language of 83.33% with the interpretation "Very Good" criteria.

Material Feasibility Test Results

Three factors are taken into consideration when evaluating the material validation test: the viability of the content on MOOCs, the viability of presenting on MOOCs, and the utilization of animated videos on MOOCs. The following are the findings of the material's feasibility assessment, as shown in the following table:

No	Aspect	Question Item Number	Average Percentage of Eligibility (%)	Criteria
1	The feasibility of the content	1-7	83.00	Very good
2	The feasibility of presenting	8-15	80.00	good
3	The use of animated videos	16-20	83.00	Very good
	Overall score average		82.00	Very good

Table. 3 Feasibility Test Results by Material Expert

The following is a discussion of the findings from the material experts' evaluation of the MOOCs' feasibility.

1. The feasibility of the content on MOOCs media

   The two parameters that make up the content feasibility component of MOOCs are the material's correctness and fit for basic competencies. The typical eligibility percentage for every indication is 83.00 %. This shows that the MOOCs media's content feasibility satisfies the "Very Good" standard.

2. the feasibility component of MOOCs media presentations

Two indicators—material presentation approaches and material presentation support—comprise the feasibility component of MOOCs media presentations. The MOOCs' presenting feasibility has satisfied the "Good" criterion, as evidenced by the average eligibility percentage of 80.00% for each metric.

3. The use of animated videos on MOOCs media

One indicator, the animated video component, makes up the feature of using MOOCs media with animated videos. With an average of 83.00% of eligible students for each indication, these MOOCs' usage of animated films satisfies the "Very Good" standard.

The results of the percentage of these three aspects obtained the results of the overall average assessment of this MOOCs media material of 82.00% with the interpretation "Very Good". Student satisfaction in using MOOC can be seen in table 4 below.

No	Aspect	Satisfaction Percentage
1	Clarity of work instructions	83.00
2	Ease of operating the MOOC	80.00
3	Tools according to their function	75.00
4	Sequence Tool	75.00
5	Ease of Language	75.00
6	Typing	80.00
7	The material is easy to understand	80.00
8	Suitability of material content with RPS	80.00
	Overall score average	78.50

Table. 4 Student satisfaction in using MOOC

The results indicated that students' answers in the MOOC were at a moderate level. It is shown while several students agree that they are able to use MOOC. The results also confirm that several students believe that this MOOC assisted them when doing the study autonomously, and the materials are understandable for them. In addition, the findings show that some students agree that they understand better about learning using this application. Students are more interested in studying through the MOOC in online interactions rather than reading. They were enjoying their study using computers. They prefer more to use this MOOC as the source of information. The acceptance given by students toward MOOC is considered as at a moderate level. Not only that, students also enjoy using this platform for learning. Additionally, students are prepared to access the MOOC platform whenever they choose. MOOC is thought to have revolutionized the field of online learning. Thus, it can be stated that MOOC is beneficial in boosting the students' motivation to learn anything independently.

DISCUSSION

The results of this study demonstrate that MOOC is considered to be at good level for students to use in English for Specific Purpose subject. It is confirmed by agree responses given by students about knowing how to access MOOC. MOOCs are the promising and increasingly popular technological innovation in higher education (Fadli et al., n.d.).The results indicate that several students believe that MOOC assist them to do the learning autonomously and the materials are understandable for them. According to Kemmanat & Gan (2020), multimedia presentations and a variety of media options should be part of media design for students with hearing impairments.

Besides, findings show that some students agree that they understand more about learning when using this simple platform. Students are more interested in studying through the MOOC in online interactions rather than reading. This is supported by Yassine & Abdellatif. In MOOC, information delivered to students is viewed as the beginning phases for them to be able to seek information path for their learning.

Students' interactions with the interface are crucial because an intuitive and online learning environment can encourage students to take an active role in their learning (Manaf, et.al). Because they enjoy and feel at ease with computers, students prefer to use the MOOC learning platform to find information. MOOCs are an important step forward in the evolution of online teaching and learning; open, distant, and online learning began much earlier than MOOCs and will only become more relevant when MOOCs become but a fascinating side note. (Kop & Carroll, 2011).

Massive Open Online Courses, or MOOCs, are simply online courses offered for educational purposes. They are distinguished by their accessibility and scalability, meaning that anybody can access them. (Radygin, et.al, 2013). To sum up, while student acceptance of MOOC literacy is moderate, it still needs to be raised to ensure that the course is implemented seamlessly utilizing the MOOC program.

Additionally, this study discovered that when a teacher used MOOCs as instructional tools, the students were engaged. As the MOOC progresses, participants who stick with it to the end—a gradually declining number, of course—are more inclined to watch longer segments or full videos. (Kovačević & Perisin). Not only that, students also love to use this platform for learning. MOOC researchers will be able to

provide faculty and instructional designers with guidance for designing effective environments for online learning (Jobe, 2013).

Furthermore, students are ready to use the MOOC platform at any time. A MOOC is considered as a game changer in the online educational system. MOOCs have the abilities to support vast learners in a specific matter (Joel, 2015) From the perspective of students, internet usage and websites like the use of MOOC can encourage students to take advantage of learning using MOOC.

Chen argued that MOOC had advantages. There were accessibility, users' comfort, and lifelong learning experience. It offered open and free learning which made it easy for people from different backgrounds to access it. Its classes were open entry and open exit so that users felt more comfortable knowing that there were no consequences if they could not finish the courses. Moreover, as MOOCs were open to everybody with no restrictions in age or educational background, it promoted lifelong learning experience which could increase the quality of human resources. For example, drilling strategies where some attempts have to be made by the students. Learning using MOOC can provide immediate feedback to students. This will indirectly give a very positive reinforcement to the students' interest.

In this regard, the researchers can conclude and argue that the student's interest in using MOOC is at a high level. Researchers argue that most items of student interest questions on MOOC use among students have shown that students are aware of the MOOC application facility in the learning process. This is in line with Colin et.al, MOOCs represents online courses aimed at unlimited participation and open access via the internet. In particular, they represent a dramatic stage in web-based education systems that has been enabled by the rapid growth of Internet access and increase in bandwidths over the past decade.

The findings show that student' styles in MOOC use are at high levels for the whole item. This can be seen when some students agree that they visit the MOOC's website to find information materials. MOOCs offers the opportunities to opening up learning and presenting a wide range of choice in various areas and specialties, for a massive number of contributors. Moreover, MOOCs support the movement toward the lifelong and on demand learning, for the ones who are work fulltime or those who take a break from their formal education (Kop & Carroll, 2011).

This can be perceived when some students agree that the MOOC helps them learn not to spend time. This statement is reinforced by Vaibhav & Gupta, where

MOOC users can access without any time and place gaps. In addition, the findings show that students use the MOOC platform on daily basis. Massive Open Online Course (MOOC) which combines technology and modern teaching methods together can be used for this purpose. MOOC allows people all over the world to access education online anytime. Videos, still and motion images, and audios can be provided in MOOC. A variety of courses and self-assessments can be created. It supports online collaboration and knowledge sharing of open educational sources in the form of text that makes student understand the content quickly. Streaming media that includes both videos and audios, making the content more concrete is also available. The content can be related to everyday life. There are example situations that make students think how to solve the problem. There is a sign language interpreter for those who are unable to fully communicate by writing or speaking, allowing hearing impaired people to communicate clearly according to their needs. In conclusion, student learning styles in MOOC use are high but need to be improved to ensure MOOC implementation among students.

CONCLUSION

This study successfully developed a Massive Open Online Course (MOOC) for English for Academic Purposes (EAP) following a structured approach. The ADDIE model (Analysis, Design, Development, Implementation, and Evaluation) guided the development process, ensuring all aspects were carefully considered. To evaluate the effectiveness of the developed MOOC, two key metrics were employed. The first metric assessed the overall quality of the MOOC. This likely involved a rubric or checklist that evaluated criteria such as content accuracy, organization, adherence to instructional design principles, multimedia integration, and accessibility features. The MOOC achieved a very good rating with an average score of 82.66%, indicating it effectively meets these quality standards.

The second metric measured user satisfaction. A survey or questionnaire was likely used to gauge learners' experience with the MOOC. The survey probably addressed aspects like user interface clarity, content engagement, perceived learning effectiveness, and overall satisfaction. The average score of 78.50% translates to a good rating, indicating a positive user experience with the MOOC. Encouraging student participation is crucial for the continued success of the MOOC program. Integration of the MOOCs into existing courses as supplementary learning resources

can be highly beneficial. Lecturers can introduce the MOOCs to their students and guide them on how to incorporate them effectively into their studies. This collaboration leverages the strengths of both traditional classrooms learning and the flexibility of MOOCs.

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