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E-ASSESSMENT DESIGN DEVELOPMENT IN ENTREPRENEURIAL LEARNING

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Abstract:

Assessment is a fundamental aspect of learning and becomes a challenge in online learning in the area of disruption. Besides being able to improve the professional competence of educators, the proper application of e-assessment can help students to have the competencies needed in the 21st century. This study aims to develop an e-assessment design in entrepreneurial learning in Accounting Department Universitas Negeri Malang, Indonesia. This eassessment, which is designed to assess students' knowledge, attitudes, and skills, becomes more efficient and transparent and is easily accessible to students. The results of this study are not only useful for lecturers in the process of designing e-assessments but also for undergraduate students of Accounting Education as prospective accounting educators so that they know in real-life contexts that can be learned and applied in educational courses. The development of the e-assessment design in this study can be used as a reference for other researchers in developing e-assessments in other subjects, but still must adapt it to the curriculum and learning system that applies at the university.

Keywords:

E-Assessment, E-Learning, Entrepreneurial Learning

Introduction

Since the Covid-19 pandemic in 2020, educators are required to optimize the use of Information and Communication Technology (ICT) through learning. It also supports the implementation of 21st-century learning. The 21st-century curriculum must combine knowledge, thinking, innovation, skills, media, ICT literacy, and real-life experiences (Alismail & McGuire, 2015). Although there are various competencies in different education systems, critical thinking skills, collaboration, communication, problem-solving, and digital literacy are skills that must be possessed by students in the 21st-century today (Care et al., 2018).

Therefore, educators must be able to implement an online learning system or e-learning, which of course also affects the assessment system. The assessment aims so that learning objectives can be achieved appropriately, especially accounting learning in the 21st century. E-assessment is an integral part of e-learning, so educators must be able to apply e-assessment in learning appropriately or according to 21st-century learning standards. In implementing e-learning, educators should also implement e-assessment which can be in the form of automation of administrative procedures, digitalization in online exams (multiple-choice and essay tests) and assessment of problem-solving skills. The application of e-assessment can be computer-based, website, or through the Learning Management System (LMS) which is applied in an educational institution. E-assessment has benefits in providing direct feedback to students, improving student performance, reducing teacher time and labor, lowering costs for institutions, and encouraging higher-order thinking which is one of the goals of education (Alruwais et al., 2018).

Accounting education must develop in utilizing information technology. This technology is important in creating credible simulations and better support for educators and learners. The curriculum in the Accounting Department of the Faculty of Economics (FE) has implemented life-based learning which was launched by Universitas Negeri Malang (UM) in 2018. Therefore, the courses presented are expected to be designed following the life-based curriculum. The use of technology in learning at UM has been facilitated through the Network Management System (SIPEJAR). This strongly supports the implementation of 21^{st} -century accounting learning.

Online learning that must be carried out by UM starting in March 2020 is a challenge for lecturers in developing effective learning models, ranging from strategies, methods, to evaluation/assessment techniques. Online assessment design (e-assessment) has an important role in measuring student abilities because based on online learning experiences over the past year, there are many difficulties/obstacles faced by lecturers, while e-assessment designs and techniques, which are indicators of measuring student achievement also affects the achievement of Graduate Learning Outcomes Standards (SCPL), namely graduates who have 21st century competencies and skills. This is the basis for the importance of conducting this research.

Entrepreneurship courses are compulsory subjects that must be taken by students at UM, including the Accounting Department. Based on data in Indonesia show that the number of job opportunities is lower than that of job seekers. The majority of Indonesian people (70%) want to become Civil Servants (PNS) and 20% want to become entrepreneurs (Wiratno, 2012). Thus, learning entrepreneurship courses is expected to be a medium in motivating students to be interested in becoming entrepreneurs, so entrepreneurial learning must be carried out

effectively. Learning is a very important part of the overall success of an organization (Cowdean et al., 2019).

Entrepreneurial learning is often misinterpreted as the science of how to sell a product, even though entrepreneurship is not limited to that. Teachers often require students to quickly find business ideas by developing problems, solving problems or creating opportunities (Linton & Klinton, 2019). The most important thing about entrepreneurship is how one can find or create the right business idea. Before the Covid-19 pandemic, entrepreneurial learning was carried out offline and students could practice their business freely. However, currently, lecturers must be able to design online entrepreneurial learning designs, including the assessment design. As a result, appropriate online assessment procedures are required so that the determined learning outcomes can best accomplish the objectives of online entrepreneurial learning.

Educators are not only obliged to transfer knowledge to students, but also open the mindset of students so that they understand that the knowledge they receive has meaning for their lives so that they can change their attitudes, knowledge, and skills for the better. Educators not only have full authority over learning scenarios but also adjust to fix this. Therefore, educators must be able to make changes for the better (innovation) of learning which is of course adapted to the times.

Literature Review

E-Assessment in Online Learning

As an effort to improve the quality of education, it can be pursued in various ways, including by perfecting the learning process that has been carried out. Therefore, an educator must evaluate his learning, so that he knows what changes must be made. To provide information about the pros and cons of the process and results of learning activities, an educator must conduct an evaluation. Evaluation activities (both process evaluation and learning outcomes) are an integral and inseparable part of learning activities.

In order to increase the potential for assessing 21st-century skills, ICT can be used in addition to being used as a traditional assessment tool (Nurul Asri, 2019). ICT-based assessment, also known as e-assessment, has the potential to enhance educational innovation and the development of 21st-century skills like complex problem solving, communication, teamwork, and creativity and innovation. One of the main uses of e-assessment is evaluating online academic courses or distance learning processes (Kunaefi, 2018). According to (Dennick et al., 2009), online student assessment has several advantages, including (1) the ability to reduce marking loads; (2) the ability to have results available as soon as an exam is completed; (3) the ability to have results immediately reviewed by an exam board; and (4) the ability to perform a variety of online quality checks.

E-assessment can help teachers improve the quality of feedback for students. E-assessments allow teachers to track student performance and make analyses across multiple assessments. In addition, using e-assessment can reduce the burden of assessing a large number of students. So, assessment is a fundamental aspect of learning and becomes a challenge in online learning (Alruwais et al., 2018). According to (Kearns, 2012), physical distance between instructors and students creates obstacles, as does the requirement to use technology to connect with students, workload and time management issues, and the constant need to collect and offer feedback on

various assessment data. Therefore, an important prerequisite for developing an effective assessment technique in e-learning is to ensure that academic competence in subject content is aligned with the learning objectives (Gaytan, 2005).

Entrepreneurial Learning

The education system is designed to meet the needs of the community, including the assessment system. It is often expected that students who complete a high-quality education system will possess skills that society values and requires. A quality education system is certainly supported by quality learning as well. 21st-century learning has now led to online learning systems, such as e-learning and MOOCs (Massively Open Online Course) which are now very popular.

Two things need to be considered in learning entrepreneurship. The first is related to the mindset of teachers who often misunderstand that entrepreneurial learning is only limited to how students can successfully sell a product. Second, teachers must continue to innovate entrepreneurial learning in line with technological developments, in this case, entrepreneurial learning must be done online/mixed. Educational technology is indispensable when students participate in entrepreneurial activities in online and blended entrepreneurial learning environments (Chen et al., 2021). Furthermore, the educational strategy should be structured to support the development of critical skills and competencies that will enable students to solve challenges in a real-world business setting.

Because knowledge is a "must" for a country's social and economic prosperity, learners must participate in the information society. The arrival of ICT in the sphere of education has led to considerable changes in terms of improving the structure and function of education. In terms of e-learning and distant learning, the advent of new technology has played a significant part in moving forward from traditional teaching to a new level of approach. According to (Chen et al., 2021), social media can be used to facilitate collaboration between participants to increase student enjoyment and involvement in online and blended entrepreneurial learning. In addition, it is also necessary to provide platforms such as MOOCs and high-quality learning resources anywhere, anytime.

The results of research by (Helena Costa Oliveira, Manuel Sai, 2016), accounting learning in Portugal developed an accounting learning model through a business simulation model that was presented supported by two types of information technology: education and student entrepreneurship. This model prepares students for the real world so that it can increase students' confidence in facing the challenging professional world. The learning model designed in the study by (Ramen M., Moazzam, 2016), students are required to complete more practical work, such as "work-based learning," in which they will gain a deeper understanding of the accounting environment and how and where to apply principles and theories taught.

Entrepreneurship educators have an important role in students, namely how teachers can provide direction to students in finding problem points with solutions. In addition to designing a new paradigm, another challenge for educators is the empowerment of human resources that have not been maximized. Because educational reform requires a shift in educational actors' mindsets, where educators must be able to educate students rather than only teach and train them. The old paradigm of education must be changed with a new paradigm that prioritizes

critical thinking skills and lifelong learning, and always innovates while still holding the principle of educational goals.

Methodology

This research will be conducted at the Department of Accounting, FE UM. Sources of data were obtained directly from the results of observations of the implementation of learning and respondents, namely lecturers and undergraduate students of Accounting Education who are involved in entrepreneurship lectures. This study uses a research and development approach. The design of educational research models is applied in the process of developing and validating educational products (Borg, Walter R., Gall, 2007). The product of the research is an online entrepreneurial learning e-assessment design. The development model from Borg and Gall was used and adapted to the needs of this research without compromising the quality of the resulting product. The ten steps of the adapted Borg and Gall Model in this study are depicted in the following figure:

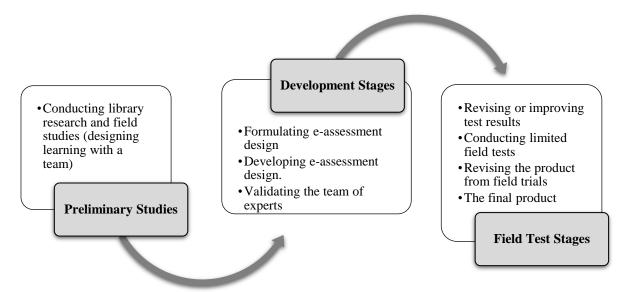


Figure 1: Development Stages

Data collection techniques through observation, interviews, and documentation. Observations and interviews were used to collect data regarding the analysis of the needs of lecturers and students on the development of the e-assessment design. The research team collaborated with a group of entrepreneurship training lecturers to conduct observations. The documentation needed by researchers includes learning outcomes, learning objectives, lesson plans, and evidence of the learning process including assessment.

The data analysis technique in this study using qualitative analysis techniques is to describe the results of observations of the implementation of product trial results (e-assessment design) by lecturers and interviews with students after entrepreneurial learning is completed for one semester or during reflection activities. The purpose of the reflection activity is to find out how students react to the assessment system that researchers have created. According to (Creswell, 2018), qualitative data analysis can be generalized to several people with a broader theory. When a researcher investigates more cases and applies the findings to new ones, this is known as generalization.

Results

Full online entrepreneurial learning was first carried out at UM in the even semester of the 2020-2021 academic year. The design of online entrepreneurial learning in that semester was carried out together with several lecturers who support entrepreneurship courses to determine learning objectives, learning models, and what materials will be provided. Entrepreneurial learning in this study is carried out synchronously and asynchronously online. After that, the researchers designed an online entrepreneurial learning design with the stages shown in Figure 2 below:

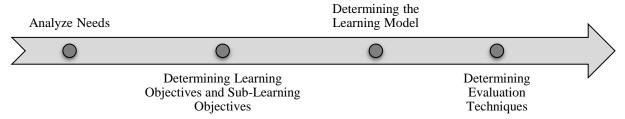


Figure 2: Entrepreneurial Learning Design

Needs analysis is carried out by analyzing learning outcomes (SCPL) to determine learning objectives (CPMK) and Sub-CPMK for entrepreneurship courses. The formulation of CPMK in entrepreneurial learning is as follows:

Table 1: Course Learning Objectives

| Learning Objectives of Entrepreneurship Course | | | | | | |
|--|--|--|--|--|--|--|
| 1 | Students can have a comprehensive understanding of the concept of | | | | | |
| | entrepreneurship, planning, and engineering business. | | | | | |
| 2 | Students can analyze creatively by being responsible for making rational and | | | | | |
| | measurable business decisions by considering the potential risks that arise and will | | | | | |
| | be faced. | | | | | |
| 3 | Students can analyze and apply various business opportunities in various fields by | | | | | |
| | utilizing and developing various sources, especially those based on local wisdom. | | | | | |

After that, the researcher determined the Project-Based Learning (PjBL) model as an online entrepreneurial learning model. PjBL has the potential to be an innovative learning approach in teaching and learning (Nuraini et al., 2019). In designing PjBL, researchers also determine strategies, activities, and assessment techniques. This online entrepreneurial learning is carried out by utilizing an LMS at UM called SIPEJAR and several social media.

After conducting a literature study, field study/observation with a team of lecturers, the researcher entered the second stage is formulating an e-assessment design that was adapted to stages of project-based learning and the use of SIPEJAR. The formulation of the assessment for 16 meetings or for one semester can be seen in Table 2 below:

Table 2: E-Assessment Formula

| Meeting | Student Learning Activities | Assessment Form | Assessment Percentage (%) |
|-------------------------------------|---|--|---------------------------------|
| 1 st | Discussion of semester lecture plans with lecturer | - | - |
| 2 nd | Answer the essential question (Discuss the importance of entrepreneurship) | Formative assessment | 5% |
| 3 th | Design a plan for th project Create a schedule | Formative assessment | 5% |
| 4 th | Determine the source of business ideas and business customers | Formative assessment | 5% |
| 5 th | Determine competitive advantage | Formative assessment | 5% |
| 6 th | Analyzing business ethics | Formative assessment | 5% |
| 7 th | Financial planning | Formative assessment | 5% |
| 8 th | Designing Business Model Canvas (Mid Exam) | Summative assessment (Mid exam assessment sheet) | 20% |
| $9^{th}-14^{th}$ | Drafting a Business Plan Proposal | Formative assessment (Business plan proposal assessment sheet) | 20% |
| 15 th – 16 th | Publish and present project results (Final Exam) Evaluate the experience | Summative assessment (Final exam assessment sheet) | 30% |

The online entrepreneurial learning e-assessment design can be seen in Figure 3 below:

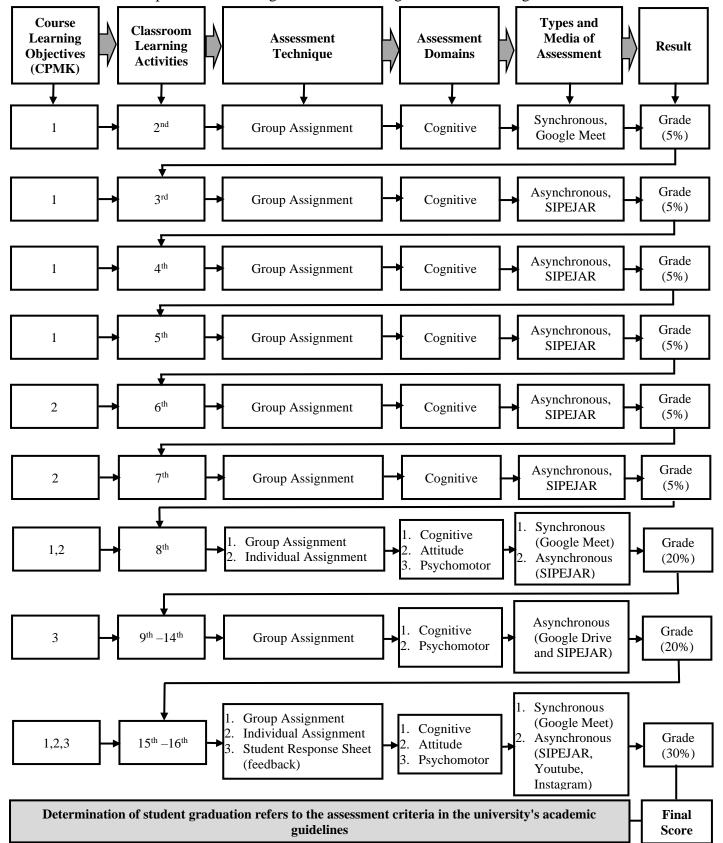


Figure 3: Online Entrepreneurial Learning E-Assessment Design for One Semester

The development of the e-assessment design is adjusted to the assessment formulation in table 2 using the SIPEJAR platform and social media as supporting media. After obtaining the student's final score, the lecturer determines the student's graduation based on the assessment criteria in the university's academic guidelines as follows:

Table 3: Assessment Criteria in Determining Student Graduation

| Score Scale | Score in Letters | Score in Numbers |
|-------------|------------------|------------------|
| 85 – 100 | A | 4,00 |
| 80 - 84 | A- | 3,70 |
| 75 – 79 | B+ | 3,30 |
| 70 - 74 | В | 3,00 |
| 65 – 69 | B- | 2,70 |
| 60 – 64 | C+ | 2,30 |
| 55 – 59 | С | 2,00 |
| 40 – 54 | D | 1,00 |
| 0 – 39 | Е | 0,00 |

Students follow the learning according to the phases set by the lecturer because the e-assessment design is described clearly and coherently. So, students can complete the task if they have completed the previous task. Following the development stage, researchers received input from a team of experts after the e-assessment design was completed. After making revisions to the assessment domain section, the researcher tested it directly on one test class to be observed and then revised again before being tested on a large number of classes.

Discussion

The development of the e-assessment design in Figure 3 consists of two forms of assessment, formative and summative assessments. In addition, this type of assignment consists of group and individual assignments, where the authentic assessment for one semester covers the domains of attitudes, knowledge, and skills according to the curriculum in Indonesia. The development of this validated e-assessment design uses the SIPEJAR platform, Google Drive, which is supported by the use of social media such as Youtube and Instagram. According to (Chen et al., 2021), the use of social media can encourage interaction between learners and learners and bring the possibility of online learning can be carried out anywhere.



The following is a form of group assignment assessment using SIPEJAR:

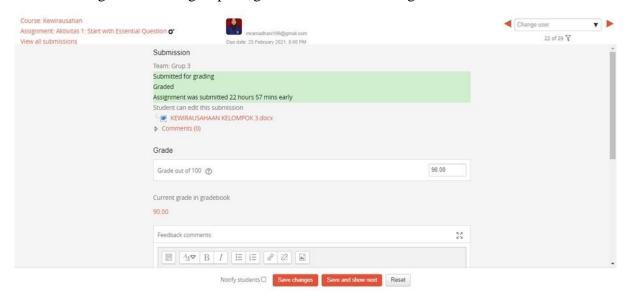


Figure 4: Form of E-Assessment in SIPEJAR

The use of distance learning systems such as SIPEJAR helps the assessment process to be more efficient. The name of the student who submitted the assignment, the time of the assignment (to check for late submissions), the kind of assignment, material, feedback remarks, and grades are all logged on the platform and visible to students. Many leading universities and companies work with distance learning system platforms (MOOCs) to upload courses and entrepreneurship resources in text, audio, and video versions (Chen et al., 2021).

Assignment starts at the 2nd until the 16th meeting in one semester. The utilization of the SIPEJAR platform dominates assignment collecting and assessment. Although SIPEJAR is effectively and efficiently applied in learning, sometimes there are still obstacles, such as students who cannot access it because of a slow signal. Despite the challenges and limitations associated with their use, online assignments have a significant potential to play an important educational role in student learning in higher education (Boitshwarelo et al., 2017). In addition, google drive is used as a basis for assessment in the form of observation, where the lecturer monitors the progress of the work carried out by students in each meeting as shown in Figure 5 below:

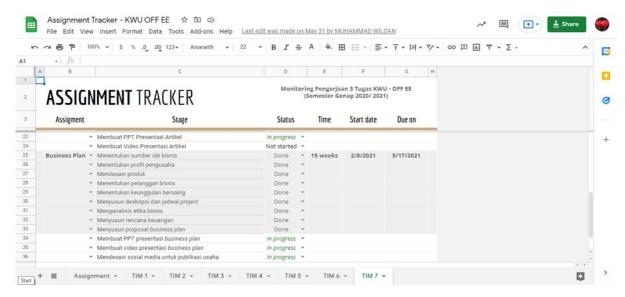


Figure 5: Assignment Tracker for Students

The most important factor in successful evaluation is the precision of the design process (Howell & Yemane, 2006). In developing the online entrepreneurial learning E-Assessment design, it refers to the principles in preparing the e-assessment design by (Boitshwarelo et al., 2017), which consists of: (1) assessment objectives; (2) context; (3) learning outcomes; (4) tasks; (5) feedback process; and interaction. Interaction is an important thing that needs to be considered in distance learning when to interact online synchronously or asynchronously. In the middle and end of semester exams, researchers chose to use google meet as a medium in learning. Students present the results of the project for one semester online synchronously and followed by a question and answer session and discussion. Thus, lecturers can assess cognitive aspects, attitudes, and skills, both in groups and individually. The following is an illustration of when students take the end of semester exams:

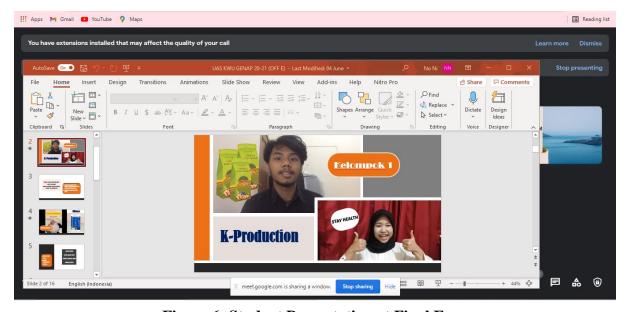


Figure 6: Student Presentation at Final Exam

In addition, students publish their work through YouTube and Instagram, which can be seen in the following figure:

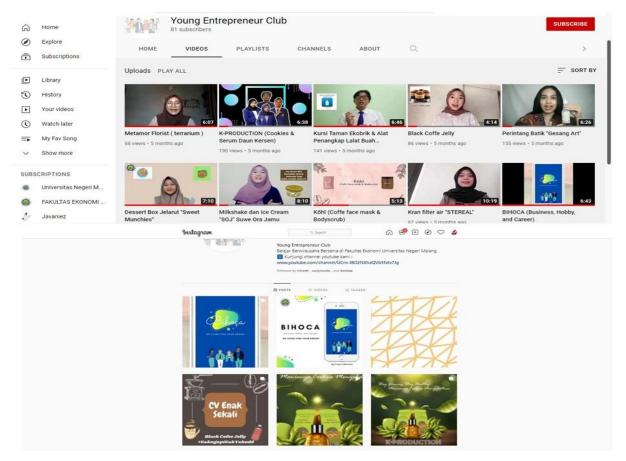


Figure 7: Use of Social Media As a Media to Support Assessment

This study found that lecturers and students gave a positive response to the e-assessment design. It is easier for lecturers to understand the process of designing an e-assessment because the design is designed systematically and is clearly described in the lesson plan. Lecturers can assess students from three domains as well as cognitive, affective, and psychomotor. In determining the design of the assessment, the teacher should select the targeted skills and then develop items to measure them, determining the sequence of tasks (Deane & Song, 2014). Students also gave a positive response in terms of overall grade transparency. In addition, lecturers and students have a better understanding of the sequence of materials and their assignments for one semester.

The design of the entrepreneurial learning e-assessment does not only cover aspects of skills but also aspects of students' knowledge and attitudes. The knowledge aspect is assessed from questions and answers and tests during the exam, the attitude aspect is assessed when students present and do assignments from the beginning to the end, while the skill aspect is assessed from the creativity of students in making works, publishing, and presenting their work.

Conclusion

The learning management system at UM (SIPEJAR) was used to create an e-assessment on entrepreneurial learning, which was supplemented by additional media such as Google Drive, Google Meet, YouTube, and Instagram. The use of the latest social media is an effort to adjust the habits of the current generation of students who are more familiar with and often use social media. This e-assessment which includes formative and summative assessment includes an assessment of students' knowledge, attitudes, and skills. In addition to being more efficient, this e-assessment becomes more transparent for students and is easily accessible even though it is not face-to-face with the lecturer. The development of this e-assessment design can be applied to other courses, of course, not only referring to the theory of assessment principles but also adapted to the curriculum and learning system that applies at the university. In addition, teacher creativity is needed in choosing media or tools to support the assessment process.

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