



The Innovation of Evaluation Instrument Based on Cone of Experience: A Way for Improving Student Competitiveness in Society 5.0

Sri Umi Mintarti^(✉), Sri Handayani, and Indra Febrianto

Universitas Negeri Malang, Java, Indonesia
sri.umi.fe@um.ac.id

Abstract. In dealing with society 5.0, there are several student needs in economics learning that refer to the elements of attitude, subjective normal, and control behavior. This study aims to construct a cone of experience-based learning evaluation instrument to improve student competitiveness in the era of society 5.0. The research method used consists of two stages, namely exploratory research and development research. After knowing the characteristics and needs of students, an evaluation instrument with the ADDIE stage was developed and validated by an expert on economics and an expert on learning evaluation instruments. From the results of the study, it was found that the economic learning evaluation instrument developed was very appropriate, very useful, very interesting.

Keywords: cone of experience · student competitiveness · evaluation instrument · society 5.0

1 Introduction

The journey of the Industrial Revolution is at its peak in the current era which has entered the Industrial Revolution 4.0 phase which is marked by the increasingly massive role of technology in human daily life. In Indonesia, this phase is often known as Making Indonesia 4.0, which is currently growing quite rapidly, marked by the large use of IOT (Internet of Think), big data-based industry, financial technology-based industry, e-commerce and the sharing economy. One of the areas that must be prepared in Making Indonesia 4.0 is the field of education which is proven by the development of Disruptive Education which is widely applied in the world of education.

The era of Disruptive Education will certainly shift the competencies possessed by students. In addition to the basic competencies that must be possessed, students also have to adjust the standards that are developing. There are at least 5 competencies to be able to survive in this era of disruptive education, namely educational competence, competence for technological commercialization, competence of globalization, competence in the future strategies, and counselor competence [1]. These competencies need to be possessed to increase student competitiveness in the current era of society 5.0.

On the other hand, there is a breakthrough for Independent Learning for students in Indonesia. This breakthrough is certainly an alternative to increase student competitiveness in the face of disruptive education. The dynamics of a learning life that never stops, on the one hand, can be a source of inspiration, motivation and encouragement for life in achievement for students [2], but on the other hand can be a source of problems and challenges that must be solved [3]. In the perspective of lifelong learning, the place of learning can be positioned as a learning agency of lifelong learning (Laal, 2011). It can thus be understood that, firstly, places of learning become “learning spaces” for life, considering that the whole system, mechanism, and process of interaction that occurs in the study room is quite diverse in value or knowledge that can be learned by students. Through a variety of experiences and challenges faced in a place of learning, a person’s skills and knowledge are constantly being honed [5]. Second, changes in learning systems and or mechanisms that are adapted to the development of science and technology can drive learning needs for students to be able to learn according to the new systems and mechanisms that are applied in the place of study (Narushima et al., 2017). This is the implementation of Merdeka Learning which can be simplified in the cone of experience.

In line with increasing student competitiveness, learning evaluation makes an important contribution to the economic learning process. Learning evaluation is important and must be taken into account by an educator in assessing the ability of students to the material being taught [7, 8]. Diversification in the preparation of learning evaluations is important, especially in the era of society 5.0 which shifts the competence of human resources, especially in the field of education [1, 9, 10]. There have been many studies on the evaluation of economic learning that have been carried out previously [11]–[12] but some of these studies have not considered the shift in competencies that exist in the era of society 5.0. Further relevant research from [14] his research results show that mixed learning is quite effective in online learning, including in terms of evaluation that can be more objective and has many choices of assessment instruments.

There is research that examines the role of educational evaluation in the era of society 5.0 [15–17] but the study is not in accordance with the context of Merdeka Learning that is echoed by the Indonesian government at this time. For this reason, it is important to initiate research to construct a learning evaluation instrument based on the cone of experience as the implementation of independent learning in increasing student competitiveness in ere society 5.0.

This study aims to construct a cone of experience-based economic learning evaluation instrument as the implementation of independent learning in increasing student competitiveness in the era of society 5.0.

2 Method

The research design is (a) exploratory research, and (b) development research (*research and development*). Exploration research is carried out using a quantitative approach, and development research is carried out using a quantitative-qualitative approach (mix methods).

First, exploratory research, carried out with the aim of (i) identifying students’ philosophical orientation tendencies and learning styles, (ii) identifying students’ adversity

quotient in increasing their competitiveness and (iii) identifying the initial configuration of abilities. Students in learning economics.

Second, research development (*research and development*), was carried out to construct a cone of experience-based economic learning evaluation instrument as the implementation of independent learning in increasing student competitiveness in the era of society 5.0. This development research was conducted using the ADDIE model, as developed by Branch, (2009).

In exploratory research, data mining is carried out through distributing questionnaires to teachers, which are then sharpened by *focus group discussion* (FGD). The questionnaires distributed were in the form of a questionnaire about (i) student learning philosophy orientation, (ii) learning style, based on David Kolp’s conception), (iii) adversity quotient, and (iv) students’ initial abilities.

Development research was conducted to construct an evaluation instrument for economic learning, carried out using the ADDIE development research model Branch, (2009). Based on the ADDIE guide-line there are 5 stages, namely (1) the analysis stage, including: analysis of the characteristics of the target group (i.e. high school students equivalent), about (i) learning philosophy orientation, (ii) learning style, based on the conception (Kolb), (iii) adversity quotient, and (iv) students’ initial abilities; (2) the design stage, including: conceptual design of the construction of economic learning evaluation instruments; (3) the development stage, including: testing the validity of the concept by experts on learning evaluation instruments; 4) implementation phase, including: limited model testing to potential users; (5) evaluation stage, including: evaluation of each stage and the end to determine the achievement of the evaluation instrument criteria developed and ready to be disseminated.

The data sources of this research can be grouped into 2 based on the research design: (i) exploratory research data sources and (ii) development research data sources. In this exploratory study, FGD was conducted which was attended by 40 teachers who were selected purposively. The data obtained were analyzed using an interaction model that refers to [19] to determine the characteristics of students in learning economics. The results of the analysis are used as the basis for formulating the economic learning evaluation instrument which is carried out in stages. Furthermore, a trial was conducted on material experts and evaluation instruments referring to the inter-rater-agreement [20].

| | |
|---|---|
| A | B |
| C | D |

After the evaluation instrument has been validated by experts, it is implemented in small groups with the aim of measuring the success of the evaluation instrument in increasing student competitiveness in the application of Merdeka Learning, namely numeracy literacy skills, especially in the era of society 5.0. This implementation was carried out on 20 high school students who had implemented the independent learning curriculum in their schools. From the results of the implementation, a different power test was carried out on students using the newly developed evaluation instrument, with

other evaluation instruments. The last stage is an evaluation carried out to find out the shortcomings that exist in the previous stages.

3 Results and Discussion

3.1 Results of Exploration of Student Characteristics (Post FGD)

Before carrying out the construction process of the economic learning evaluation instrument, a preliminary study was conducted first. This study was conducted with the aim of digging up complete information about the characteristics of students in economics learning, especially by using an independent curriculum. In extracting this information, this is done by conducting a Forum Group Discussion (FGD) together with the economics subject teacher as the direct actor who interacts with students in their daily classes. From this FGD, data related to the characteristics and needs of students were obtained in evaluating economic learning (Fig. 1).

The results of the exploration of student characteristics in economics learning in this study have been successfully summarized in three main elements in the Theory of Planned Behavior (TPB), namely 1) attitudes towards behavior, 2) subjective norms, and 3) behavioral control. The identification of these elements is based on increasing student competitiveness in accordance with the independent curriculum, namely on the literacy and numeracy competencies of students. The following are the results of the translation of student characteristics according to the elements in the TPB (Table 1):

Based on the table above, it shows that the attitude towards behavior that students have is not good in supporting the growth of student interest in economic learning, especially after the existence of an independent learning curriculum. This negative attitude is the main cause of the ineffectiveness of the evaluation of economic learning that has existed so far. This is in line with several previous studies which state that students' interest in learning will appear if they have a good attitude or perception of the subject [21–24]. This cognitive aspect has a domino effect on economic learning where a bad attitude will make students have low self-regulation and do not have assertive behavior in accepting invitations in their social environment.



Fig. 1. Documentation during FGD

Table 1. Exploration Results of Student Characteristics

| No. | TPB Element | Student Characteristics |
|-----|---------------------------|---|
| 1 | Attitude Towards Behavior | <ol style="list-style-type: none"> 1. Students don't know the opportunities they can do in the future by just doing the questions 2. Students feel they do not have the opportunity to explore hidden abilities 3. Students do not know how to have high literacy numeracy skills by only working on questions 4. Students feel that economic learning packaged in an independent curriculum is boring and the assessments made are not important |
| 2 | Subjective Norms | <ol style="list-style-type: none"> 1. Students do not have support to improve their numeracy literacy skills during the evaluation process 2. Students are influenced by peers who say that learning economics through numeracy literacy is not interesting so that working on questions is only based on high scores. |
| 3 | Control Behavior | <ol style="list-style-type: none"> 1. Students follow peers who cheat in economic learning assessments. 2. Students have irrational thinking that is influenced by the social environment during the learning evaluation process 3. Students have low interest in learning economics, especially in the application of the independent learning curriculum so they do not want to explore more in economic material |

Source: processed by researchers, 2022

In the affective aspect, field facts show that subjective norms are still not well internalized. Subjective normality possessed by students tends to lead to deviant behavior which results in the inability of evaluating economic learning to provide a stimulus to increase student competitiveness in the current independent learning curriculum. The failure of this stimulus reduces students' interest so that economics subjects are considered unimportant and useless for later life.

3.2 Construction of Cone of Experience-Based Economic Learning Evaluation Instruments

Based on the results of the preliminary study stage that had been carried out previously, it became the basis for formulating an economic learning evaluation instrument in order to increase student competitiveness in the application of the independent learning curriculum. Learning instruments are formulated using a cone of experience approach in accordance with the results of student needs that have been identified in the previous stage. The following is the design flow of the economic learning evaluation instrument that has been compiled (Fig. 2):

In its implementation, the economic learning instrument is implemented side by side with the questions that have been developed by the teacher or educator. These items

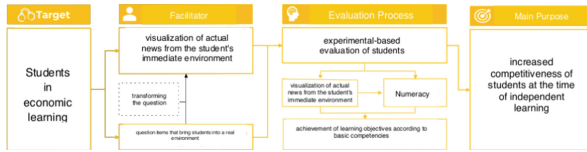


Fig. 2. Construction of Economic Learning Evaluation Instrument Flow Source: processed by researchers, 2022.

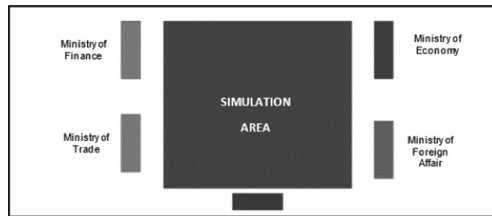


Fig. 3. Examples of implementation of learning evaluation through role playing Source: processed by researchers, 2021

become evaluation outputs that can provide real experience in learning economics. The following is an example of implementation question items that bring students into a real environment to the questions.

The implementation of this evaluation instrument can also be collaborated with existing learning strategies and models. One of the learning models that can be used in this evaluation instrument is the model *gamification* which requires students to perform simulations as if playing games in the learning evaluation process. This learning evaluation is also adjusted to the class layout where there is a need for modifications to the class layout to make it more interactive. The interactive learning evaluation process is able to increase the absorption of material and student interest in the lessons taken [8, 9, 25, 26]. The following is an example of a simulation design for the formulation of fiscal and monetary policies in a country (Fig. 3).

Based on the overall assessment of the expert test on the aspects of usability, convenience, accuracy, and attractiveness, it was found that; 1) the acceptance index of the 1st and 2nd learning evaluation instruments is 0.83; 2) the acceptance index of the 1st and 2nd economic material experts is 1. From these results it can be concluded that the economic learning evaluation instrument developed is very appropriate, very useful, very interesting, and very easy to use in improving student competitiveness, especially in the ability to literacy and numeracy at the time of independence were learning to meet the ongoing era of society 5.0. At the next stage of research, implementation will be carried out on users, namely high school students who are implementing an independent learning curriculum to see the real results of implementing learning instruments.

4 Conclusion

The results of the construction of the economic learning evaluation instrument which was developed based on the existing values on the principle of the cone of experience

which allows students to explore hidden abilities in learning evaluation. The evaluation instrument is manifested in items that refer to the independent learning curriculum through collaboration with several relevant learning models. In the results of the expert test, it was shown that the evaluation instrument obtained the result that the economic learning evaluation instrument developed was very appropriate, very useful, very interesting, and very easy to use in increasing students' competitiveness, especially in literacy and numeracy skills when they were free to learn to meet the era of society 5.0 which is currently being developed. Take place.

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