

Students' Competence Needs Analysis in Curriculum for Facing 21st Century Education

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ARTICLE INFO

Keywords:

Competence;
Curriculum;
Education;
Global

Article history:

Received 2021-12-03
Revised 2022-03-17
Accepted 2022-06-04

ABSTRACT

This study aims to determine the competency needs of students in curriculum design to face the challenges of 21st-century education. This study uses a qualitative approach. The subjects of this research are postgraduate students at one of the private universities in Batu City who are currently pursuing master's and doctoral education. Data was collected through interviews and questionnaires. Data analysis in this study consisted of several flow activities carried out together, namely data reduction, data presentation, and conclusion drawing/verification. The results of the study conclude that student competencies that must be designed in the higher education curriculum to face the challenges of 21st-century education must pay attention to three aspects, including; creating new value, reconciling tensions and dilemmas, and responsibilities. So, the curriculum framework that must be made includes cognitive skills, social and emotional skills, and practical skills. The results of this study also have implications for the understanding of higher education related to the development of human life and science, because the curriculum created can meet student competencies in the future.

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1. INTRODUCTION

The curriculum has an important role in the educational process. Moreover, currently, the government has implemented the use of a curriculum based on the Indonesian National Qualifications Framework. This means that the curriculum used in tertiary institutions has been adjusted to the level of achievement of the respective expertise competencies that students must possess. So that it can face the challenges of the quality needs of human resources in the global era. The government designed guidelines for study program stakeholders in Indonesia to reconstruct the existing curriculum by the times due to the advancement of the Industry 4.0 era and the Ministry of Education and Culture's policy to implement the Independent Learning-Independent Campus program. The Independent Learning Program-Independence Campus provides opportunities for students to gain wider learning experiences

and new competencies through several learning activities outside of their study program, with the hope that in the future it will produce graduates who are ready to win the challenges of increasingly complex life in the 21st century (Young, 2014; Lindén, Annala, & Coate, 2017; Hrivnak, 2019).

In the curriculum design, it is clear that students in the master's and doctoral-level study programs must have competencies at levels 8 and 9. Thus, the use of the curriculum in postgraduate programs must meet the competency needs of graduates of current global challenges or the industrial world. The student's competence after completing the lecture must be relevant to current needs. Therefore, every educational institution needs to understand the competencies needed in the 21st century or the era of globalization (Samihaijan, Holbrook, & Crisan, 2014; B. Creese, 2016; Malik, 2018).

To meet the needs of student competencies required, this research was conducted because 1) the competencies that master and doctoral program students must possess must meet levels 8 and 9 in the curriculum, 2) globalization has changed the role of universities into knowledge-creating institutions, 3) the development of science and technology that demands changes in the concept of teaching and learning and the development of socio-cultural values, 4) changes in the demands of graduate competence by global needs.

Thus, the curriculum at universities must be constructed on the technological competencies needed in the upcoming Industry 4.0 era (Ellahi et al., 2019; Iizuka, 2019). Education curriculum must be designed with the changes that occur (Wang, 2019). So, vertical and horizontal integrity and coherence in the curriculum must be in line with competency needs (Singer, Samihaijan, Holbrook, & Crisan, 2014a). Universities must understand the concept of multidimensional competence that is set to fulfil the potential of students. Thus, the design of competencies in the curriculum can be adapted to the needs of the job market, the challenges of postmodern society, and educational programs so that they can meet the needs of the business world (Soare, 2015; Vidergor et al., 2019). It means that the curriculum designed must understand the concepts of complexity and connectivity to achieve future global goals (Aponte & Jordan, 2020). Thus, the curriculum becomes an important part to achieve 21st-century skills that can meet the professional development and competence of students (Martinez, 2022). To achieve the implementation of competency design in the curriculum, it must involve resources owned, by all stakeholders substantially (M' mboga Akala, 2021). Al-Hamlan & Baniabdelrahman (2015) recommend the results of the study that teachers and schools should conduct a needs analysis regularly and update the curriculum according to needs.

From previous research, this research gap is directed at analyzing the competency needs needed by students in curriculum design to face 21st-century education. Competencies that are tailored to the aspects of students' needs so that they can meet global needs and the current business world which demands higher quality human resources. Thus, the value of novelty to be raised in this study is related to student competency needs that are relevant to 21st-century skills and must be included in curriculum design and student competencies are closely related to the Independent Learning-Independent Campus model.

Therefore, this study aims to determine the competency needs of students in curriculum design that is relevant to the conditions of 21st-century education. The results of this study are expected to be a guide for universities to develop a framework of competency achievement that must be possessed by students in the curriculum so that graduates can have competencies that are in line with the challenges of the global and digital era. In addition, the research results can also be useful for the understanding of all lecturers related to teaching and learning design by the provisions in the curriculum and the development of people's lives today.

2. METHODS

This study used the qualitative approach. The study explored the phenomenon in the field that occurs (Kim, Sefcik, & Bradway, 2017), it means that a naturalistic inquiry process seeks an in-depth understanding of social phenomena and understands how one perceives the meaning of that social reality (Allen, 2017). This study is related to the analysis of student competencies needs in the

curriculum of relevant study programs for 21st -century education so that they can meet the skills needs of the 21st century and the era of scientific and technological progress. It was conducted in Institut Injil Indonesia. The subject of the study was postgraduate students in Private University in Batu City that was studying in magister and doctoral programs. So, participants were students (N = 50) and lecturers (N=10).

Data were collected through interviews and questionnaires. An interview is done for the lecture (n=10) to ask about the concepts of students' competence needs in the curriculum. The questionnaire is used for students. The questionnaire is designed using open ended-questions. The designed questions relate to students' competence needs. The questionnaire designed in this study to determine student competencies refers to the concept of transformational competence which consists of three components, namely 1) creating new value, 2) reconciling tensions and dilemmas, and 3) taking responsibility. As stated by Miles and Huberman (1994), activities in data analysis can be carried out interactively and continue until the data is saturated. Data analysis in this study consisted of several flow activities carried out together, namely data reduction, data presentation, and conclusion drawing/verification.

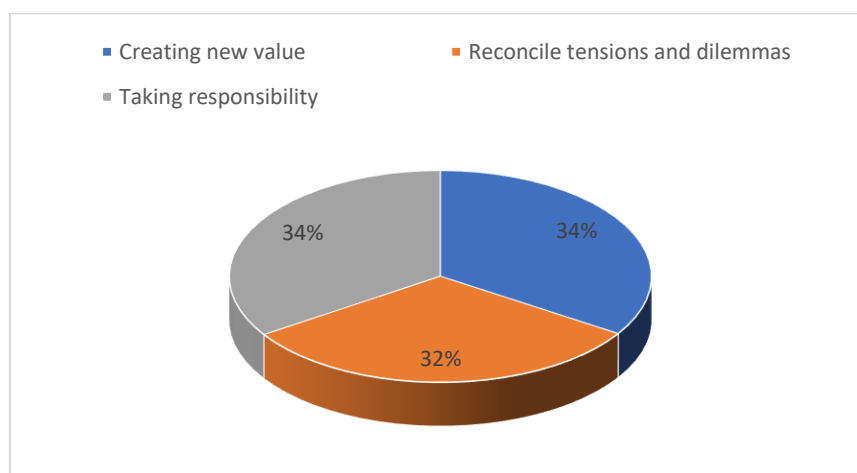
3. FINDINGS AND DISCUSSION

The results of the questionnaire data analysis show that the student competencies designed in the curriculum must be able to answer the challenges of graduate needs. The following percentages are related to student competency needs that must be built into the curriculum.

Table 1. The Result of Questionnaire for Framework of Students' Competency Needs in Curriculum

	Components	Concept of Competence	Yes	No
1	Creating new value	Collaboration	80%	20%
		Utilise of knowledge	90%	10%
		Creating new knowledge	84%	16%
		Creativity	90%	10%
		Curiosity	80%	20%
		Open mind	94%	6%
2	Reconcile tensions and dilemmas	Problem solving	80%	20%
3	Taking responsibility	Self-regulation concept,	90%	10%
		Self-control,	86%	14%
		Self-efficacy,	80%	20%
		Responsibility,	90%	10%
		Adaptability.	88%	12%

From table 1 it is known that overall student competencies should be able to answer the challenges of 21st-century skills so that all problems that they do not know can be faced. This means that all the problems and needs of graduates can meet the challenges of globalization. The competencies presented in the questionnaire data indicate that students must have competencies that can create new values, solve all problems, and be carried out with full responsibility. This means that the competencies designed in the curriculum must make them become someone who can learn to think and act in a more integrated manner, taking into account the interrelationships between ideas, logic, and conflicting or inappropriate positions, both from a short-term and long-term perspective.



Graph 1. The Average Components of Framework of Students' Competency Needs in Curriculum From Interview Data

Graph 1 is the result of data processing interviews that have been carried out with teachers regarding the importance of 3 components that must be considered in designing student competencies according to their needs to meet curriculum needs by the development of the globalization era. Of the three components, the main point is to create new value. This means that teachers must know the competency needs that are to the developments and changes in human life today so that they can carry out the stages of teaching that are by the achievement of 21st-century competencies. The second component is creating student responsibilities related to their self-management in learning and producing knowledge according to their abilities. The third component is the student's ability to solve problems. This means that the learning carried out can direct students to solve various problems related to real life.

The percentage shown in the table and graph concluded that the curriculum framework that should be created can create quality student competencies. Students can have balanced cognitive skills, social and emotional skills, and practical skills. In cognitive skills, students have creative competence, self-regulation, curiosity through learning, self-control, and open thinking. For social and emotional skills, students have the competence of collaboration, self-efficacy, responsibility, problem solving and adaptability. Meanwhile, practical skills are related to the competence in balancing the development of science and technology (students can take advantage of the knowledge and create new knowledge). From these findings, the competency framework that can be designed in the curriculum to face challenges in the implementation of education in the future is as follows.

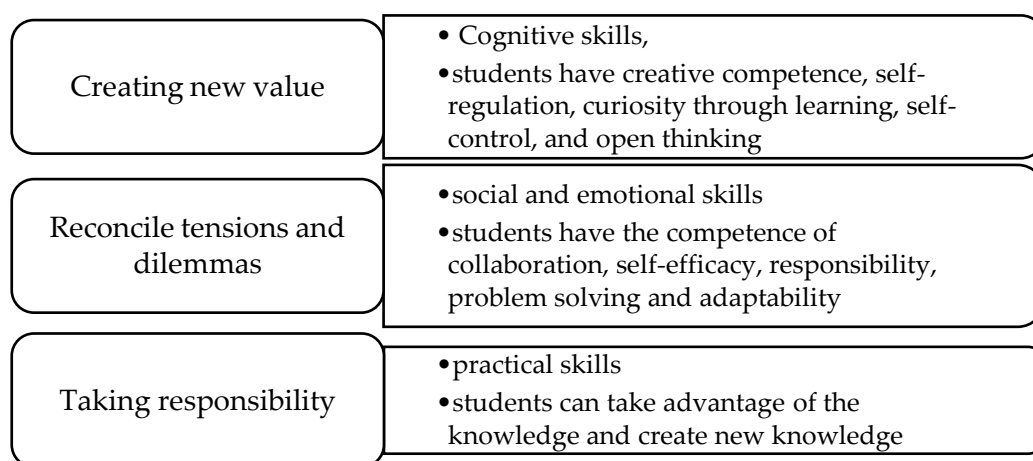
While the results of interviews with lecturers who have been analyzed found several conclusion items that support the analysis of the questionnaire data that has been completed by students. The conclusions of the interviews with the lecturers are;

1. Competencies that must be mastered by students should be able to create new values, such as innovating their technical skills to develop their knowledge.
2. Competencies possessed by students must be able to solve all problems with critical thinking patterns.
3. Students can have both individual and teamwork responsibilities.
4. The competencies needed at this time are critical thinking patterns, collaboration, and good and creative communication.

From the results of interviews with lecturers, it is concluded that students as agents of future change influence their environment, influence the future and create life in different societies. This means that the competencies obtained from the educational process become one of the tools in building life. Therefore, the curriculum must be made to follow the development of human life, the development of science and technology or the global context. The consequence of globalization as a whole is not the

entry of new elements into the curriculum as a forum, but the reformation and relocation of the curriculum (Dale, 2010).

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Picture 1. The framework of Students' Competence in Curriculum to Face Future Education Process

Curriculum change or reform in Indonesia is not a scary thing but a change in improving the quality of education in Indonesia. Therefore, educational institutions must have a strategy in designing curricula and strike a balance between adoption and adaptation of the situation conceptually to create curriculum designs that meet student competency needs. Thus, the creation of a set of internal organizers and mechanisms can ensure vertical and horizontal coherence integration in competency-based curricula (Singer, Samihaian, Holbrook, & Crisan, 2014b). So, currently emerging changes in new values as a form of critical reflection on globalization and curriculum changes. To enhance the global competence of university graduates, universities in various parts of the world have initiated comprehensive reviews of curricula and introduced new strategies for changing university learning and teaching approaches from a teacher-centred orientation to a more student-centred orientation. Recognizing the growing need to better prepare students to live and work in an increasingly culturally diverse and socially complex world, universities not only in the West but also in the East have developed new teaching and learning strategies to promote multiculturalism and curriculum internationalization (Mok, 2010)

4. CONCLUSION

The results of the data analysis concluded that the curriculum designed by universities must consider and determine the student competencies needed for future education. This means that the competencies designed must be by the changing needs of life, and the development and progress of science and technology. Thus, the competencies possessed by students can be relevant to a 21st-century education. From the findings, there are 3 main components in the design of student competencies, namely creating new values, reconciling tensions and dilemmas, and responsibility. Of the three components, there are aspects of competence that describe the skills that students must possess for the future, including cognitive skills, social and emotional skills and practical skills. Each of these skills has

competency values that are relevant to the development of globalization. The results of this study also have implications for the understanding of higher education related to the development of human life and science, because the curriculum created can meet student competencies in the future.

This study provides recommendations to universities related to the competency needs that must be possessed by students. The curriculum must be designed according to the needs and changes in life by the development of global demands, especially the demands of the quality of human resources in the industrial world. However, this research is still limited to the concept of analyzing the student competency framework currently required in curriculum design. Therefore, this research can be redeveloped by further researchers related to the Merdeka Learning Campus Merdeka curriculum which is related to the taxonomy of skills that must be possessed by students

Acknowledgements: Thank you to participants who have helped during the data collection process

Conflicts of Interest: no conflict of interest

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