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Problems of biology learning and evaluation analysis at the cipp model-based higher education level

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ABSTRACT

The purpose of this study was 1) to determine what the problems of biology learning at the college level are based on the learning domain; 2) to examine the biology learning curriculum's context; 3) Evaluate the biology learning curriculum input; 4) Evaluate the biology learning curriculum process, and 5) Evaluate the biology learning curriculum at Universitas Mahasaraswati Denpasar, Indonesia. This research includes evaluative research with a mixed methods, explanatory sequential design approach. The data retrieval technique in this study used the purposive sampling method namely, 57 students and 11 lecturers became research samples. The results of this study are: 1) cognitive domain issues are misconceptions, high-level thinking skills, and gender. Affective domain problems include stress, scientific attitudes, and attitudes toward science. Furthermore, the psychomotor domain problems are basic process skills and experimental processes; 2) The context of curriculum problem related to outcome based education (OBE) is still generic and has not involved the business world and industry; 3) Input evaluation results based on leadership and educational facilities are relatively good, but still development in human resources (HR) section. Furthermore, the lecturer's teaching competencies are categorized well; 4) The evaluation of the lecture process is consistently conducted by monitoring Internal Quality Audit and ISO 21001: 2018; 5) The results of the curriculum evaluation product are relatively good but still constrained regarding the fulfillment of doctoral qualifications and student publications. Each of these issues has been assigned separately for follow-up.

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INTRODUCTION

Curriculum in higher education must be able to develop the competence of its graduates to survive in global competition (Bao & Koenig, 2019; Grainger et al., 2019; Wang, 2014). The development of the 21st century curriculum has now led to a standard of uniformity (Butt, 2011). The 21st century learning curriculum is a project-based curriculum for life that engages students in real-world issues and humanitarian issues that are important to life (Amadi & Ememe, 2013). To strengthen the position of university graduates in Indonesia, through permendikbud No. 73 of 2013 the government studied designing the Indonesian National Qualification Framework Curriculum (KKNI) which is a tiering of qualifications in coordinating, equalizing, and integrating learning achievements from non-formal, informal and derived from work experience into the college curriculum (Nugrahadi et al., 2018).KKNI is a framework of reference at the higher education level to improve the quality of human resources through the analysis of community needs (Elfitra et al., 2019). The KKNI curriculum is a "competency ontology" that aims to connect the competence of college graduates with the competencies needed by stakeholders in the world of work.

Campuses are generally places for students to study and are not places for lecturers to teach (Hartati et al., 2018). As an integral of Science Education, the Biology Education Curriculum is aimed at forming prospective professional biology teachers who are able to master four types of learning achievements in the KKNI curriculum, namely aspects of attitude, knowledge, general skills, and special skills. Referring to the KKNI curriculum, the Bachelor of Biology Educator is at level 6 KKNI, which is in theory able to apply the theory it has to solve various types of educational problems.

In its implementation, there are various problems faced by the academic community of the Biology Education Study Program of Universitas Mahasaraswati Denpasar during the online learning process. Based on the results of observations, it can be known some of the problems faced related to the context of the learning curriculum such as the ineffectiveness of the program or curriculum evaluation model used, the low participation of students in online learning, the low independence of students in managing themselves during online learning, and the optimal development of students' high-level thinking skills, namely the ability to think critically and creatively students, for each course based on the established Course Learning Achievements (CPMK). The ability of a prospective biology teacher will determine how the development of science as a field of science that becomes the basis for the progress of a nation. If in the lecture process the lecturer is wrong in explaining and has limited material then, the lecturer will have difficulty in providing alternative learning for prospective teacher students. Science learning in this case biology in Indonesia is still oriented towards the memorization of concepts and facts (Nursalam et al., 2022; Yangin & Yangın, 2019) So classically the problems faced by prospective biology teacher students are still focused on low learning outcomes. Furthermore most, studies have only tested students' conceptual knowledge and few have examined aspects of students' attitudes and skills in biological learning (Hartadiyati et al., 2020; Lee & Tsai, 2013; Ludwig et al., 2017; Nerita et al., 2017) Thus, an evaluation model is needed that can provide recommendations and solutions to deal with these various types of problems.

The Biological Education Study Program of Universitas Mahasaraswati Denpasar has actually conducted a review or evaluation of the curriculum periodically using a SWOT analysis model. The results of the SWOT analysis of Internal Quality Audit show that the position of the Biology Education Study Program of Universitas Mahasaraswati Denpasar is in quadrant I (Progressive). However, despite being in quadrant 1, the quality of learning improvement to face the demands of Outcome Based Education and Independent Curriculum which is the main challenge for the study program. The following Figure 01. is an illustration of the positioning of the Denpasar Biology Education Study Program based on the results of the SWOT analysis.

Furthermore, the implementation of evaluation is generally carried out on a limited basis by lecturers in the classroom, so the evaluation has not been done thoroughly to find out weaknesses or obstacles in the curriculum (Hadi & Rabiman, 2019). But the weakness of this Curriculum Evaluation Model is that it produces many findings but is not accompanied by an analysis of the processes that occur in the curriculum. Therefore, a process evaluation model is needed to develop the curriculum in the Biology Education Study Program of Universitas Mahasaraswati Denpasar, Indonesia.

One evaluation model that prioritizes the analysis of the process is the CIPP Evaluation Model (Context, Input, Process, and Product. The CIPP model is a comprehensive evaluation model that is relevant to the performance evaluation and supports the development of a good organizational mindset

of higher education which widely accepted (Adedokun-Shittu & Shittu, 2015; Chinta et al., 2016; Dizon, 2023; Vali, 2021). The results of previous research revealed that the use of the CIPP Evaluation Model has an interconnected and effective analysis component for the evaluation of formative, summative curricula, and good problem solving to determine the next curriculum policy (Hasan et al., 2015; Tuna, 2021). The CIPP model is flexible and prescriptive in assessing the quality of the program from various aspects with a comprehensive assessment (Lippe & Carter, 2018). At the education level, the CIPP model generally tends to be used to evaluate the English language education curriculum (N. Q. Agustina & Mukhtaruddin, 2019; Bilasa & Taspinar, 2020; Görkem Erdogan & Mede, 2021; Oflaz et al., 2022). On the other hand, for the study of curriculum evaluation of biology education at the tertiary level is still very limited (Bashri et al., 2020; Görkem Erdogan & Mede, 2021). Thus, the study of CIPP in the biology education curriculum at the tertiary level can add to the characteristics of scientific knowledge and can be used as a reference in designing higher education policies.

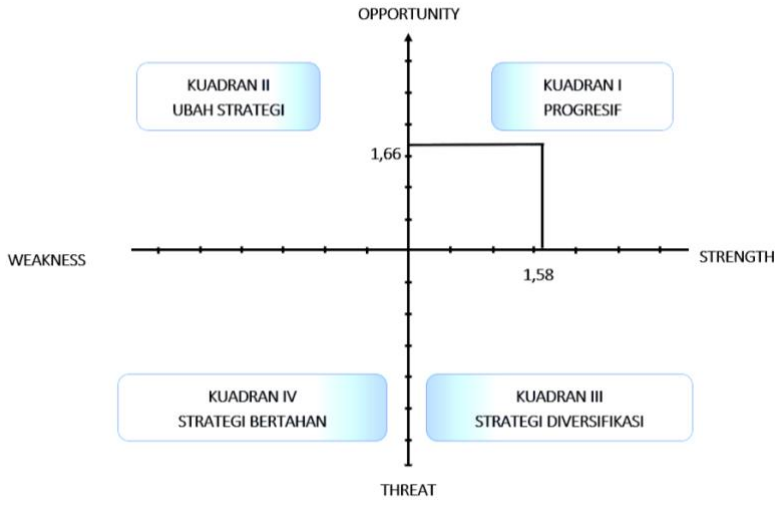

Figure 1. The position of the Biology Education Study Program at Universitas Mahasaraswati Denpasar is based on the results of the SWOT analysis (SWOT Analysis Document of the Study Program)

The purpose in this study is 1) to identify biology learning problems at the higher education level based on the learning domain, 2) to evaluate the context of the biology learning curriculum carried out at Universitas Mahasaraswati Denpasar, 3) to evaluate the input of the biology learning curriculum carried out at Universitas Mahasaraswati Denpasar, 4) to evaluate the process of biological learning curriculum carried out at the Universitas Mahasaraswati Denpasar, 5) to evaluate the products of the biology learning curriculum carried out at Universitas Mahasaraswati Denpasar.

METHODS

Research Design

This research is included in evaluative research with *a* mixed methods explanatory sequential design approach (John, 2009). Evaluative research is a type of research that evaluates an activity or program that has the aim of measuring the success of an activity or program. Explanatory sequential design is a type of research that runs quantitative research first and then accompanied by qualitative research to strengthen the description of data exposure that has been obtained before (Cameron, 2009; Creswell, 2014). Quantitative research approach is carried out to obtain data on the teaching competence of lecturers of the Biological Education Study Program of Universitas Mahasaraswati Denpasar. Furthermore, to evaluate the curriculum of the study program, the CIPP Evaluation Model is used through a qualitative approach.

Population and Samples

This research was conducted from February to March 2022 at the Biology Education Study Program, Universitas Mahasaraswati Denpasar. The population in this study is all students of the

Biology Education Study Program of Universitas Mahasaraswati Denpasar (N = 107), while the sample in this study is 57 students and 11 lecturers. The research subject was decided by using use purposive sampling techniques, which are data retrieval techniques based on certain goals or criteria(Sugiyono, 2017). The criteria used in the sampling process are all lecturers who fill in the lecture attendance completely on the university portal (*https://portal.unmas.ac.id/login*) and students who actively fill out questionnaires given through the portal. Furthermore, the questionnaire result data on the portal will be used as quantitative data, while interview data with students and lecturers will be used as qualitative data.

Instruments

The instruments used in this study are two instruments, namely questionnaire instruments for teaching competence of biology lecturers including pedagogical competencies, personal competencies, social competencies, and lecturers' professional competencies. Lecturer competency questionnaire using the Likert Scale with 5 options, namely strongly disagree, disagree, hesitate, agree, and strongly agree. While the second instrument uses semi-structured interviews about context, input, process, and product aspects of the Biology Education Study Program curriculum. Furthermore, to maintain the construct validity in this study, 5 experts were used to select statement items from questionnaires and a list of semi-structured interview statements with details of 3 experts in the field of education and 2 experts in the field of university quality assurance system. The selection techniques used in this study are using the Deplhi method which includes the stages of Define Problem, Identify and invite Experts, Solicit ideas, Rate Ideas 1, Rate Ideas 2, and Rate Ideas 3(Rao et al., 2021). The questionnaire of the selection results of each expert can be displayed in Table 1.

Table 1.
Pedagogical, Professional, Personal and Social Competency Assessment Instruments of Lecturers

No.	Competence	Statement	No	Competence	Statement
1	PED	Readiness to give lectures and / or practice / practicum	13	PROF	Develop material with the latest references
2	PED	Conveying the plan of learning activities and Learning Achievements of Courses (CPMK) set out in the course.	14	PER	Authority as a lecturer's person
3	PED	Materials presented online/offline in accordance with the Lecture Contract/RPS	15	PER	Be an example in behaving and behaving
4	PED	Order and order of lecture implementation	16	PER	Discipline in starting and ending lectures
5	PED	Ability to Turn on the classroom atmosphere	17	PER	Ability to control yourself in various situations and conditions
6	PED	Ability to explain directions and objectives in each online /offline learning	18	PER	Fair to treat students
7	PED	Utilization of online or offline learning media and technology	19	SOC	Ability to express opinions
8	PROF	Giving feedback on assignments/assessments during online/offline lectures	20	SOC	Ability to receive criticism, advice and opinions from students
9	PROF	Clear assessment criteria	21	SOC	Get to know the students who attended his lectures
10	PROF	Ability to explain the subject / topic appropriately to improve students' understanding of courses presented online / offline	22	SOC	Easy to get along with peers, employees and students
11	PROF	Ability to provide relevant examples of concepts taught online/offline	23	SOC	Tolerance for student diversity
12	PROF	Assignment of the material taught			

Abbreviations:
PED = Pedagogic Competence, PROF = Professional Competence, PER= Personal Competence, SOC = Social Competence.

Procedure

The procedures in this study can be described in Figure 2.

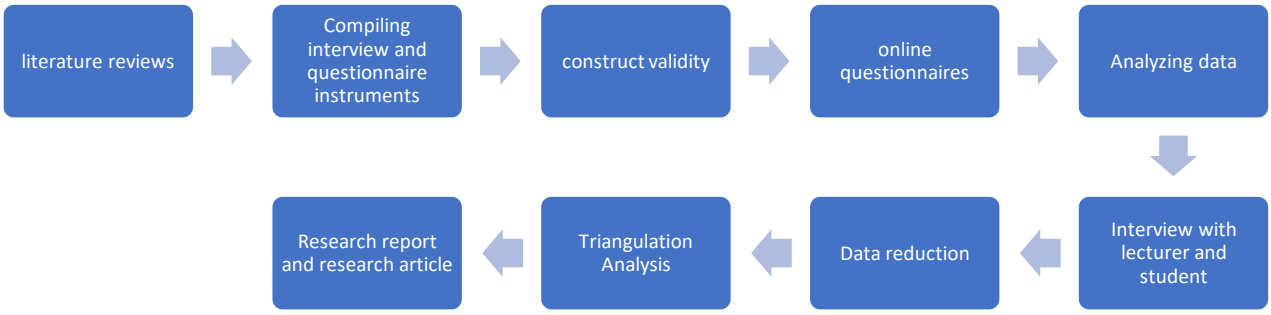

Figure 2. Mixed Methods Research Procedure

Figure 2 shows the stages of research consisting of: 1) conducting literature reviews related to the problem of biology learning at the college level as the basis or basis of evaluative research. 2) Compiling interview and questionnaire instruments, 3) construct validity or expert tests related to interview instruments and questionnaires, 4) sending questionnaires to students online through the university portal at the end of the even semester of the Academic Year 2021/2022, 5) Analyzing using descriptive statistics of questionnaire results, 6) continuing interviews with lecturers and students related to aspects of Context, Input, Process, and Products in learning or lectures, 7) conducting analysis of data reduction of interview results, 8) Triangulation with document analysis and observation, 9)Preparation of reports and research articles

Data Analysis Techniques

Tabel 2. CIPP Matrix Method and Analysis Unit

Curriculum Evaluation Data Source	Analysis Unit	Techniques used
Context	Curriculum Documents	Document Analysis
Input	Student	Interview, Questionnaire
	Curriculum Structure	Document Analysis
	Teaching Materials	Document Analysis
	Lecturer	FGD
		Questionnaire
Process	Means of Learning	Observation
	Lecture Activities	Observation
	Use of Learning Media	Observation, Document Analysis
	Information Systems	
Product	Module	Document Analysis
	Teaching Books	Document Analysis

Quantitative data analysis techniques used in this study are using descriptive statistics. The ordinal data of the results of the questionnaire spread will be analyzed with descriptive statistics. On the other hand, the qualitative approach carried out in this study is a qualitative approach in accordance with the Reduction Analysis Model (Miles & Huberman, 1994). In accordance with the approach of the selected data analysis model, the data analysis used is reduction analysis. The triangulation methods used in this qualitative study consist of: a) Observation Method, this observation method is used to see how the implementation of the curriculum that runs through observation in the lecture process, b) Interview Method, the interview method conducted involves lecturers, students, and users or stakeholders. The type of instrument used in this study is a semistructured interview instrument, c) Document Analysis Method, the document analysis method used is adjusted to the documents needed for analysis in the CIPP evaluation model, d) The Questionnaire method, which carried out by the dissemination of lecturer competency assessment questionnaires by students consisting of pedagogical

competencies, social competencies, and personal competencies, e) Discussion Method and Forum Group Discussion, which a method that used to dig up information related to the curriculum evaluation model used. The details of data analysis techniques in the evaluation of the CIPP-based curriculum can be seen in Table 2.

RESULTS AND DISCUSSION

Cognitive Domain

The cognitive domain is a learning domain that generally gets a focus for its development in lectures. The latest biology learning research research not only examines partial learning outcomes, but has analyzed the learning outcomes of prospective biology teachers with other relevant variables such as self-efficacy, cultural capital, student attitudes and gender (Almasri, 2022). Although the relationship between cognitive variables and other supporting variables is very complex, research on the ability to think high (higher order thinking skills) of prospective biology teachers is still very minimally found. Recent research reveals that active learning and student-centered models are better approaches in supporting the learning outcomes of biology of prospective teachers. But in practice this approach is still supported by the knowledge and skills of lecturers who are still lacking, especially in the process of providing feedback to students to improve their professionalism (Thompson et al., 2020). In student learning outcomes, students' conception of biological learning materials is one of the fundamental and very important aspects to develop. Referring to the constructivistic philosophy that it is essential for students to learn concepts correctly (Gültekin et al., 2014). The problem of misconception of prospective teachers in lectures is commonly found. Missconceptions of prospective biology teacher students are generally related to complex materials in lectures such as photosynthesis and respiration (Maskour et al., 2019; Setiawati et al., 2014; Wu et al., 2018). Generally, students still experience misconceptions related to the place and time of photosynthesis in plants, the sun's role in photosynthesis, the energy needed in photosynthesis, and the role of photosynthesis for plants. On the other hand, related to the material respiration misconception of students still occurs in the material where respiration in plants, gases needed in the process of respiration for plants, the time of respiration, as well as the CO2 and O2 cycles that occur in nature (Wu et al., 2018). The success of lecturers in improving student concepts depends largely on the readiness of the concept to be immediately used by prospective biology education teacher students (Çınar, 2016) .Thus an alternative solution that can be offered to overcome these problems is through strengthening teaching materials in the form of valid lecture modules and students can manage their learning progress independently.

The lecture process on campus will indirectly form the competence of students as prospective biology teachers later. Students aspiring biology teachers must know how the paradigm shift in measuring student learning outcomes in schools in accordance with the needs and demands of the learning revolution. For example, BioSkills instruments that can be used to measure learning outcomes with STEM-based which include skills in applying science processes, the ability to use quantitative reasoning, the ability to use and simulate models, the ability to utilize the interdisciplinary nature of science, the ability to collaborate with different disciplines, and finally the ability to understand the relationship between sciences with the community (Clemmons et al., 2020). The perspective in measuring student learning outcomes for prospective teachers is very important for the development of student potential in the future. By looking at biology as one of the fields of future science that is strongly related to other fields of science, prospective teacher students will realize that biology is a field of science that is very complex and useful for everyday life.

To determine or formulate student learning outcomes well, lecturers can use anticipated learning outcomes by using backward design in designing semester learning plans (RPS). Backward design is one of the methods of designing LO (learning outcomes) in RPS which starts from determining the purpose of the lecture (desired results), determining the task or assessment to be used (evidence), and planning student learning activities by learning outcomes (learning plans) (Cho & Trent, 2005; Hills et al., 2020; Hosseini et al., 2019). Backward design requires lecturers to determine the skills, ideas, understanding, and dispositions most important to students and then build learning experiences relevant to learning outcomes (Frey, 2018).

Specifically, the problem of cognitive learning externalization in the form of learning outcomes for prospective biology teachers is related to developing high-level thinking skills, namely the ability to think critically, creatively and problem-solving. The problem of critical thinking ability in biological

learning is related to the selection of valid information to solve various problems in the era of globalization is complex (Santi et al., 2018). From the indicators of critical thinking habits of mind conveyed by Marzano, the lowest critical thinking ability possessed by prospective students of biology education teachers lies in the ability to put themselves when there is a guarantee (Idris, 2019). The ability to position themselves is very important so prospective biology teacher students can carry out their duties and roles effectively later in the world of work. The ability to think critically is not innate but rather an ability that must be trained continuously to become a good habit (Dharmono et al., 2019). To overcome the low critical thinking skills of prospective biology teacher students, the latest research recommends using the use of innovative learning models (Isnaeny, 2016), use of learning modules(Nugroho & Subiyantoro, 2017), hand out (Dharmono et al., 2019), lesson study (Wahyuni et al., 2015), contextual material development (Santi et al., 2018), and the use of hands-on activities in carrying out practicum (Ariyati, 2012)

The creative thinking skills of prospective biology teacher students must get the same portion as the development of other higher-order thinking skills. The research results on prospective biology teacher students at the State University of Semarang show that the creative thinking ability of prospective teacher students is still in the poor category. So it needs improvement and development (Dewi & Masrukan, 2018). As a result, more and more students are unable to relate the theory they get to the context of their daily life (Smyrnaiou et al., 2020). The way daily lecturers teach conventionally / rote learning in class also contributes to hindering one of the 21st century competencies, namely the ability to think creatively.

In terms of gender, there are differences in learning outcomes between male and female biology teacher candidates. The results showed that female biology teacher candidates had lower learning outcomes when in groups with male students compared to groups with female students (Almasri, 2022). This indicates that female biology teacher candidates often have difficulty collaborating in a group with male students in online learning. In contrast, male biology teacher candidates benefit from collaborating in a heterogeneous group with women in online learning. Male biology teacher candidates can overcome socio-cultural barriers that can cause them to feel reluctant towards female students in a group.

Affective Domain

The affective domain is a domain that is often overlooked in biology courses. The current practice of science learning only focuses on conceptual knowledge and ignores the contextual, interest, and affective environment of students (Tytler, 2007). Although nowadays there has been an awareness to develop affective and cognitive aspects in science education, namely biology education in particular, this quantity is still not significant (Fortus, 2014).

As part of the prospective science education teacher, prospective biology education teacher students in facilitating students through the inquiry process in developing student skills are often associated with negative emotions such as discomfort or stress (Aini et al., 2020). This will cause a high cognitive load on students so as to damage the concentration of student learning. On the other hand, the investigation process through inquiry carried out by prospective science teacher students showed that the implementation of biology science learning with inquiry activities could motivate prospective biology teacher students to learn because it was interesting, fun, and valuable (Bulunuz et al., 2012). Thus, it can be concluded that the development of positive attitudes of prospective teacher students is very dependent on the role of facilitation of lecturers. Lecturers must facilitate students well, provide a supportive academic atmosphere, and be able to quickly diagnose and overcome the difficulties experienced by prospective teacher students to develop a positive attitude of prospective teacher students towards lectures. In reviewing the affective domain of prospective biology education teacher students, there are generally two problems, namely the understanding of educators in this case lecturers who are still lacking in distinguishing scientific attitudes and attitudes toward science (Tytler, 2007). Scientific attitude is a cognitive feature that characterizes scientific thinking including motivation in scientific understanding, seeking evidence, questioning and approaching critically, and the need for verification. On the other hand, student attitudes toward science generally refer to the beliefs, feelings, and values of a person towards science, science at school, and or the influence of science on society and scientists (Osborne et al., 2003)

Students' attitudes towards science are strongly supported by the attitudes of their lecturers or teachers towards science, especially biology. The attitude of the lecturer or teacher towards science is

an important factor that affects the effectiveness of learning. The negative attitude of lecturers towards science has been proven to hamper the student learning process, because lecturers have low self-confidence so that they do not provide good opportunities for students (McDonald et al., 2019). Because the attitude domain is generally durable, prospective biology teacher students must force themselves to develop themselves to develop students' attitudes towards science optimally (McDonald et al., 2019; van Aalderen-Smeets et al., 2017).

Psychomotor Domain

From the psychomotor domain, the problems in the skills of prospective Biology teacher students are generally similar to the problems encountered in Science Learning. Biology teacher candidates generally have problems in conducting performance assessments. Even though the assessment has been carried out its use in practice is still limited (Haka et al., 2021). This is supported by data that the ability to carry out teacher practicum at the school or madrasa level is still in the poor category (37,28) based on aspects of knowledge about laboratory processing, processing and observation, and management systems (Chusni et al., 2019). Thus, there is a correlation between the ability of prospective biology teacher students and the ability of teachers when carrying out practicum at school. In general, student process skills in lectures can be divided into two, namely basic process skills and experimental process skills. Basic process skills consist of observation, measurement, classification, prediction, inference and communication. On the other hand, experimental process skills consist of model building skills such as identifying and controlling variables, formulating and testing hypotheses, interpreting data, determining each task, and carrying out experiments (Erkol & Ugulu, 2014; Ratumbuisang & Wu, 2020).

Several recent studies have concluded that the low performance or process skills of science teachers are related to the low development of process skills of prospective science teacher students during college, this of course will have an impact on the development of process skills of students in the classroom (Saepuzaman et al., 2019; Sari, 2021) Facts show that most teachers do not conduct performance assessments in classroom learning (Carli et al., 2021). This also affects the quality of science education, especially biology in Indonesia, which is still based on the Education Development Index (EDI), which is ranked 64 out of 120 countries (Duschl & Grandy, 2013). Thus the development of the process skills of prospective biology teacher students becomes very important to improve the quality of Indonesian human resources globally. Process skills will give prospective teacher students the life skills that will later be needed to become professional teachers in the world of work. Process skills training needs to be done repeatedly for prospective biology teacher students to have experience and provision in carrying out learning that develops process skills (P. Agustina & Saputra, 2016).

The lack of process skills of prospective biology teacher students in the laboratory is caused by the low basic process skills and experimental process skills of prospective biology teacher students. The description of the process skills of prospective biology teacher students can be seen in Table 3. Data interpretation Table 1 informs that all aspects of basic process skills are in the low category. The two main aspects that are the most critical and must be handled immediately are the planning aspect of the experiment and the aspect of carrying out the experiment. If further analyzed the two abilities are experimental process skills that can be formed well if the basic process skills of prospective teacher students are in the good category. Because all these basic skills are still lacking, it will contribute to the low basic process skills of prospective biology teacher students.

Table 3.
Basic Process Skills for Biology Teacher Candidates

Scientific Propcess Skills	Percentage
Conducting Observation	43.45%,
Counting/ Conducting Measurement	53.21%
Data Intepretating	56.88%
Communicating in writing	57.24%
Planning an experiment	7.17 %
Conducting Experiment	5.39%

(Maknun et al., 2012)

Evaluation of the Lecture context of the Biology Education Study Program, Universitas Mahasaraswati Denpasar, Indonesia

Based on the results of the analysis of the learning context that has been carried out in the Biology Education Study Program, which has used the IQF curriculum which has also referred to the Outcome Based Education (OBE) context. Based on the results of the analysis of curriculum documents, lesson plans, and learning syllabus, several things can be described as follows:

1. The curriculum that has been implemented in the Biology Education Study Program is a hybrid curriculum that tries to adopt three types of aspects in curriculum development, namely the KKNI curriculum, the Merdeka Campus Program, and has referred to the development of an international curriculum based on OBE.
2. The preparation of the curriculum for the Biology Education Study Program at Universitas Mahasaraswati Denpasar has involved stakeholders, graduates and alumni users. So that the resulting curriculum is indeed a market need that is in accordance with the profile of graduates of the Biology Education Study Program.
3. There is a synergism of the Hybrid Curriculum designed with the Vision and Mission of the Universitas Mahasaraswati Denpasar, Indonesia. This can be seen from the emergence of courses that characterize study programs in accordance with the University's Vision, namely "to become a Quality and Cultured Higher Education" namely ecopedagogy courses, Contextual Biology Learning
4. The Curriculum Document does not yet contain how to measure Learning Outcomes optimally. Because the written document is only a rating scale document.
5. The reference used by the Biology Education Study Program related to Outcame Based Education is still generic because it does not refer to a particular audit institution. This will cause problems later in determining the standards that will be used when applying for accreditation.
6. The Study Program has given its students flexibility in participating in the independent campus program that has been programmed in semesters 5, 6, and 7. However, the problem that occurs is that the Study Program has not involved DUDI (Business World and Industrial World optimally) because the partners listed in in the programmed curriculum, only Bedugul Botanical Gardens and School partner are programmed, despite the fact that the profile of graduates of the Biology Education Study Program consists of four, namely: Biology Researchers, Biology Educators, Biology Entrepreneurs, and Education Unit Managers.

Evaluation of Lecture Inputs for the Biology Education Study Program, Universitas Mahasaraswati Denpasar, Indonesia

Evaluation Inputs in the CIPP evaluation model have a central role in the regulation of decisions related to strategic plans in achieving the program. The main focus of evaluation in the field of input for the lecture process is on leadership, human resources, and educational facilities (Siswadi et al., 2019). Thus the evaluation analysis from the input perspective will focus on these four components.

The leadership aspect is a very important aspect in improving the performance of the Biology Education Study Program, Universitas Mahasaraswati Denpasar. In general, the leadership aspect that is running is in accordance with the job description stated in the rector's regulation No. 2 of 2021. Based on the results of interviews with both lecturers and students, the type or type of leadership that has been running is classified as a democratic leadership type. Namely the type of leadership that accommodates the aspirations of lecturers, students, and teaching staff in the decision-making process. Communication between the head of the study program and each component of human resources is carried out formally through study program meetings or informally in determining each decision. Regarding the curriculum determination, the Head of the Biology Education Study Program has held a meeting to review the old curriculum and design the new KKNI curriculum which is integrated with the Merdeka Belajar – Kampus Merdeka Program.

In terms of human resource input in general, it is quite good but needs to be improved again. The ratio between lecturers and students has met the standard of 1:9. However, there are still obstacles in the field of academic qualifications, namely the fulfillment of 5 Doctoral lecturers in the study program as a descriptor of the quality of the study program's vision. The follow-up plan that is carried out based on this is to program a number of 3 lecturers for further studies in the year from 2021 to 2022. In general, the facilities and infrastructure in the Biology Education Study Program to support the lecture process are sufficient. Supporting facilities and infrastructure for the formation of

professional teacher candidates are very adequate, namely the availability of Wifi, microteaching laboratories, libraries, adequate classrooms, and Smart LED touchscreen screens that can be used for TPACK-based microteaching (Technological Pedagogy Content Knowledge) teaching simulations. Hasil CIPP evaluation of the curriculum will encourage students to gain knowledge about the effective use of educational technology (Canbazoglu Bilici et al., 2016). However, in terms of the development of pure biology subject, the limited number of laboratory rooms for biology practice and limited infrastructure have limited lecturers and students to do practical activities. Although in the implementation, the lecturers of the biology education study program are creative by carrying out field practicums (outdoor learning), but not all courses can be accommodated with this type of activity.

Evaluation of the Lecture Process of the Biology Education Study Program at Universitas Mahasaraswati Denpasar, Indonesia

The Biology Education Study Program at Universitas Mahasaraswati Denpasar through the Quality Assurance Group (GPM) and its Quality Assurance Unit (UPM) has carried out regular monitoring related to the teaching competence of its lecturers at least 1 time in one semester which is integrated on the Universitas Mahasaraswati Denpasar Portal. lecturer teaching questionnaire given on the Unmas portal before filling out the Study Plan Card (KRS) for the next semester. The student assessment instruments related to the competence of lecturers while teaching certain subjects can be seen in Table 1. Meanwhile, the tabulation results for each lecturer's competence can be displayed in the histogram contained in Figure 3.

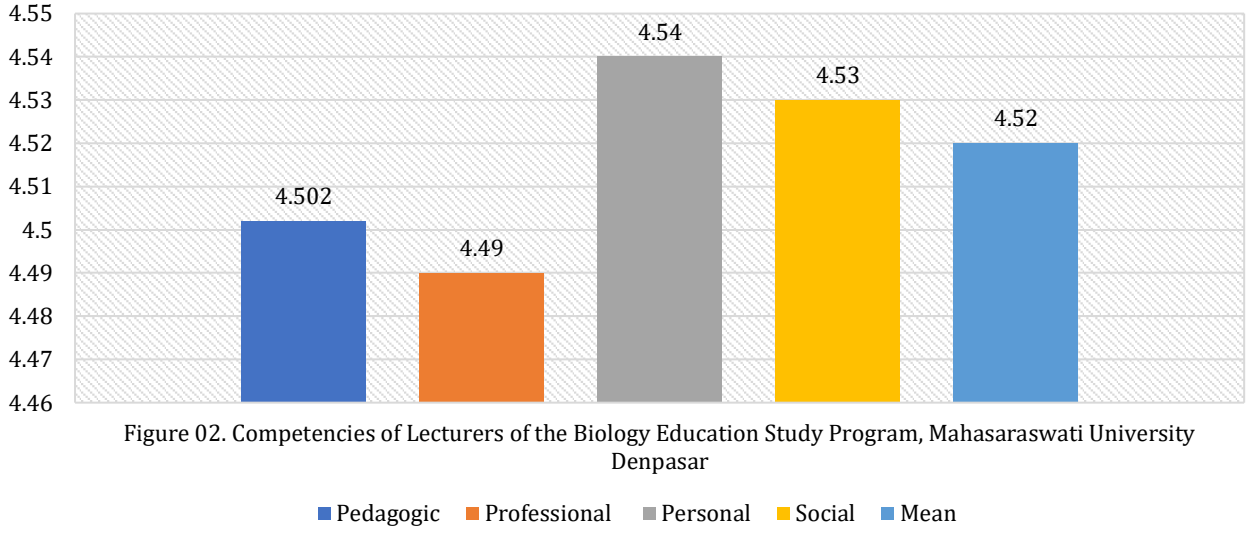

Figure 02. Competencies of Lecturers of the Biology Education Study Program, Mahasaraswati University Denpasar

Figure 3. Lecturer Competencies of Biology Education Study Program, Universitas Mahasaraswati Denpasar

The quality of a university is highly dependent on the professionalism of the lecturer as one of the Human Resources who plays an important role in the lecture process (Sinambela, 2017). To improve their professional abilities, lecturers or lecturers must continuously develop the strategies used in carrying out work that are in accordance with their profession (Haryati, 2013). Based on the results of the histogram in Figure 1, it can be seen that the competence of biology lecturers at Universitas Mahasaraswati Denpasar belongs to the very good category, with a value of $\bar{X}$= 4.52. Thus, it can be concluded that the competence of lecturers in the biology education program in general has met. Then when viewed from the value of each competence, personality competence is the competence with the highest value, namely $\bar{X}$= 4.54. which is then followed by other lecturer competence values, namely social competence ($\bar{X}$= 4.53) and pedagogic competence ($\bar{X}$= 4.502). While the competence of lecturer professionalism is the competence with the lowest score (X = 4.49).

The development of the personality competencies of lecturers at the Biology Education Study Program, Universitas Mahasaraswati Denpasar is based on the core values Integrity, Humanity, and Professionalism. In addition, the character development of study program lecturers is carried out through various types of committee activities in organizations at the level of study programs, faculties, and universities. For example, the character development of lecturers has been carried out in the

activities of the Judiciary committee, Graduation, Real Work Lectures, School Experience Practice Guidance (PLP), Scientific and Olympic Guidance, Webinar Committee, Academic Advisor, Community Service Program and so on. Personal competence or the personality of the lecturer can have an influence on the character development of students. The presence of lecturers in the lecture class when interacting with students can affect the way students think, speak, behave (Puspitasari et al., 2018).

In line with the development of lecturers' personality competencies, the development of lecturers' social competencies is also based on the core values of Universitas Mahasaraswati Denpasar. As the competence with the second highest score, the development of social competence of lecturers in the biology education study program is carried out by building a conducive academic and non-academic atmosphere. Social interaction between lecturers and students is not limited to lecture classes, but also in the form of umbrella research collaborations, community service, and participation in various other social activities outside the university such as Sekaa Teruna Teruni, Traditional Village Management, HPPBI associations (Association of Educators and Educators). Indonesian Biology Researcher) which strengthens the social competence of lecturers.

Pedagogic competence and professional competence are lecturer competencies which are still below the average value. Although in general they are classified as good, these two competencies need special attention in their further development. From the perspective of evaluating pedagogic competence, there are still obstacles for lecturers in adapting the KKNI curriculum based on OBE-MBKM. These obstacles emerged from the results of FGD discussions with each lecturer who had difficulties in synergizing between CPL, CPMK, Sub CPMK and the CPL measurement mechanism. This has an impact on the not yet optimal ability of lecturers in compiling RPS for courses and their assessments. From the perspective of the lecturer's professional competence, even though it has been included in the very good category for further development there are still problems that are not evenly distributing the results of research and community service lecturers into each lecture material. Lecturers only dominate the integration of research and community service into lecture materials by certain lecturers. So further equity regarding the integration of research results and community service is significant.

Evaluation of Biology Learning Curriculum Products implemented at Universitas Mahasaraswati Denpasar, Indonesia

Evaluating curriculum products will provide recommendations for the direction of developing the curriculum for the Biology Study Program (PSP) at Universitas Mahasaraswati Denpasar in the future. In terms of output, namely the Grade Point Average (GPA) of graduates, PSP Biology has an average GPA of graduates classified as Very Satisfactory (3.4). Meanwhile, from the outcome aspect, the waiting period for PSP Biology graduates from Universitas Mahasaraswati Denpasar the first time to get a job is classified as very good, which is an average of fewer than 3 months. However, what needs to be improved or improved here is the average study period for Biology PSP students, which reaches four years. The efforts that have been carried out to increase the average study period of PSP Biology students at Universitas Mahasaraswati Denpasar are:

1. Improving the quality of lecturers' performance in providing remedial for students who do not pass the course
2. Reducing the number of credits for students participating in the Independent Learning Campus Independent Program (MBKM) from 148 credits to only 147 credits
3. Encouraging students who take seminar courses to be earlier in completing their thesis proposals, and
4. Improving the service performance of lecturers to carry out the thesis mentoring process with a control mechanism for student thesis supervisory log book activities found on the Unmas portal by the head of the study program, namely: https://portal.unmas.ac.id/login

From the publication output produced by students in completing their final thesis in the form of a thesis, there are still obstacles to increasing the number of published student research articles. Generally, students still need help in publishing their research results in specific national journals because they have a minimal understanding of the Open Journal System (OJS) and reference management applications such as EndNote, Mendeley, and Zotero. This problem is a common problem found in final year students who have written a thesis. The follow-up plan to deal with the above problems is to increase the role of lecturers in the Scientific Article Writing Course and carry out

Mendeley reference management training for students.

Furthermore, from the aspect of other publications, namely books and Intellectual Property Rights produced by students, there are still very few. Generally, only a few students contribute to filing for Intellectual Property Rights in the form of copyrights. As for the output of books produced by PSP Biology students, Universitas Mahasaraswati Denpasar, they are still not able to move these students. As a follow-up plan for this problem, PSP Biology will encourage all students to take part in the scholarship program for making books with ISBN which has just been set by the Chancellor of Universitas Mahasaraswati Denpasarin 2022.

CONCLUSION

For the effectiveness of CIPP Evaluation, first of all the evaluation focused on analyzing the competence of the three domains of biology education students in general (cognitive, psychomotor, and affective) as preliminary information in conducting analysis. Furthermore, the evaluation is carried out with the CIPP (Context, Input, Process, & Product) stages. The conclusions obtained from this research are as follows: a) Cognitive domain problems in biology learning at the university level, especially regarding the student centered approach, misconceptions, higher-order thinking skills, and gender. While the affective domain problems include stress, scientific attitudes and attitudes toward science. Furthermore, in the psychomotor domain, the problems that arise include basic process skills and experimental processes, b) The main problem faced in the context of evaluating the PSP Biology curriculum at Unmas Denpasar is related to the development of the Outcame Based Education (OBE) curriculum which is still generic and has not fully involved DUDI, c) The results of the evaluation of the Unmas Denpasar Biology PSP Input based on leadership and educational facilities are classified as good, but still experiencing problems in the human resources (HR) department, d) The results of the evaluation of the lecture process that took place at PSP Biology Unmas Denpasar have gone well through periodic monitoring by the AMI (Internal Quality Audit) and External Teams, namely monitoring by PT Garuda Certification in order to fulfill the ISO 21001:2018 business process, e) The results of the Product Evaluation of the PSP Biology Curriculum Unmas Denpasar are classified as good. However, there are still obstacles in fulfilling Doctoral qualifications, and student publications. Each of these issues has been scheduled separately for follow-up.

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