Development of Information Processing Learning Design to Empower Communication and Collaboration Skills of Prospective Biology Teacher Students

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Abstract: Communication skills and collaboration skills are two of the 21st century soft skills that are very important to be mastered by prospective biology teacher students. Therefore, it is necessary to design learning that is oriented towards empowering these skills. This study aims to develop a learning design based on information processing theory, and to test its effectiveness on the communication skills and collaboration skills of prospective biology teacher students at the FKIP, Mataram University. This study is a development research whose procedure uses the ADDIE development research model. The product produced in this study is a learning design based on information processing theory consisting of RPS, RTM and Student Learning Journals. The results of the validation by biology learning experts stated that the learning design was declared valid. The results of the learning design effectiveness test showed that the application of learning design in the biology learning strategy course was effective for communication skills, collaboration skills, and students' understanding of concepts. Based on the validation results, and the effectiveness test of the application of learning design, it can be stated that learning design based on information processing theory can be used as one of the innovative learning designs that is oriented towards strengthening soft skills, especially for students' communication skills and collaboration skills.

Keywords: Collaboration skills; Communication skills; Conceptual understanding; Information Processing

Introduction

Educational institutions are expected to be able to produce competent and competitive prospective teacher graduates who have soft skills according to the needs of the 21st century (Hujjatusnaini et al., 2022). Integration of soft skills development into the curriculum and learning process in higher education must be a priority (Achmadi et al., 2020). One of the main tasks of lecturers is to develop learning activities that open up opportunities for students so that they are able to compete globally with human resources (HR) from various countries in the era of rapid development of science and technology in the field of communication technology. For this reason, learning must be designed in such a way as to develop students' 21st century soft skills. Among the 21st century soft skills that are important to develop are soft skills in collaboration and communication. Communication and collaboration skills will be important components to motivate students; in turn, when students are motivated, this will encourage them to think critically and take action towards achieving their goals (Quieng et al., 2015). Collaboration between teachers in one school greatly helps students achieve better learning outcomes. Ronfeldt et al. (2015) explained that teachers and schools that collaborate with better quality have better achievement in mathematics and reading. In addition, teachers will experience greater improvement when they work in schools with better collaboration quality. These results support policy efforts to improve student achievement by encouraging teacher collaboration in

team teaching. Mora-Ruano et al. (2019) stated that a positive impact on student achievement can only be achieved when teachers specifically collaborate to discuss or advise each other on student performance. Based on their findings, Saka (2021) recommends, among other things, that the government restructure school hours to accommodate teacher collaboration activities and that workshops be held for teachers on the importance of teacher collaboration as a means of professional development. Professional teachers will contribute to better student learning outcomes. Collaboration is one of the 21st century soft skills that students really need to be able to compete and contribute in the era of communication and information technology. Students' soft skills of collaboration are important for synergizing and working productively to achieve the best learning outcomes.

Communication skills are a person's ability to understand the person they are talking to, so the delivery method must be clear and easy to understand. There are interesting strategies in communicating, the requirements that must be possessed are having prominent ideas and creativity when conveying goals. With less interesting delivery, students' communication skills will be weak (Rofi'uddin et al., 2020). Communication skills are very much needed to support student activities in the learning process. Without adequate skills, students will have difficulty understanding what has been conveyed by the teacher (Nahdlia et al., 2022). The findings of Komba, (2015), revealed that communication skills courses are considered by most students in Tanzania as important courses to acquire the communication skills needed in an academic environment. Communication skills and collaboration skills are basic soft skills of the 21st century as very important provisions to be developed in every student through learning activities, so that they can become quality Indonesian human resources in the 21st century. For this reason, lecturers must be able to design and implement learning that is oriented towards development, collaboration skills, and communication. The rapid development of Science and Technology (IPTEK) in the era of communication and information technology today is a global challenge that is being and will be faced. For that we must prepare human resources (HR) who have the ability to adapt and can utilize the progress of IPTEKs. The HR that is really needed in the era of technology and information are those who have the ability to access and utilize information for the advancement of themselves, society, and the Indonesian nation. In an effort to create an Indonesian society that is able to compete in the era of globalization, a policy is needed from the government, both the central government and local governments to implement a system that is able to answer problems about skills in the

21st century (Widayat, 2018). 21st century competencies consist of soft skills of communication, creativity, collaboration, and critical thinking (Yokhebed, 2019). According to Zubaidah (2016), lecturers must prepare students to work, become good citizens and be able to face life in the 21st century is a struggle. Globalization, technology, migration, international competition, global market changes, transnational environments and political changes all point to the need for soft skills and knowledge that students need to be successful in the 21st century. Fitri et al. (2023), science process skills and collaboration skills are two of the few skills that students can master to keep up with the times. These skills are still not fully mastered by all students. Septikasari & Frasandy (2018), emphasized that a nation that is not ready to face the rapid development of science and technology will certainly be left far behind by other nations. Zubaidah (2019) learning needs to prepare students who can adapt to various rapid changes and have various soft skills called 21st century soft skills. Efforts to improve students' 21st century soft skills can be done through innovation in learning activities to empower students' 21st century soft skills.

Makruf (2017) stated that soft skill and hard skill based learning is very important in higher education. The problem that often arises is that there are still many lecturers who design their learning based only on hard skills. This is because some lecturers do not understand the importance of soft skill based learning. Through soft skill based learning, students are able to manage themselves and respect themselves in community life. Lecturers can teach soft skill values in three ways, namely: lecturer role models, this week's messages, and hidden curriculum. Furthermore, Aimang et al. (2022), emphasized that higher education has an important role in making students who have soft skills, soft skill development can be carried out in various activities both through integration into the curriculum and activities, student activities. The development of student soft skills with a priority of development so that students are able to adapt to the environment is carried out using a learning model approach that can synergize hard skills and soft skills. The results of research by Tan et al. (2021) revealed that the integration of soft skills as a whole has an effect on communication skills and teamwork. This study also found a significant impact of soft skill integration in problem solving and critical thinking on the four important soft skill elements. Embedding soft skills will result in a more real experience, and will spur students' soft skills, especially their problem-solving abilities. Empirical evidence of soft skill integration contributes to innovative teaching and learning experiences, social innovation, and impacts on school policies to develop what is needed in the industry.

This research is considered important to be conducted based on reality and thoughts, including the disclosure of information about the demands of 21st century developments marked by rapid developments in the field of information and communication technology that are global in the era of the industrial revolution 4.0. For this reason, it is very important to make efforts to improve students' 21st century soft skills through learning. The implementation of learning that is oriented towards improving students' 21st century soft skills needs to be planned, implemented, and evaluated deliberately and continuously. The learning design based on information processing theory developed through this research is expected to be one of the alternative references for lecturers in developing students' 21st century soft skills, especially communication skills and collaboration skills.

Method

This study aims to develop a learning design based on information processing theory. The research design used is the ADDIE model design.

The model was chosen based on the consideration that this model was developed systematically and is based on the theoretical basis of learning design. This model is structured and programmed with a series of systematic activities in an effort to solve learning problems. This model consists of five steps, namely: analysis; design; development; implementation; and evaluation (Widyastuti & Susiana, 2019).

Research Stages

This research was carried out in 2 (two) stages, namely the stage of developing a learning design based on information processing theory, and the stage of testing the learning design that has been developed. Each stage of development can be described as by Figure 1.
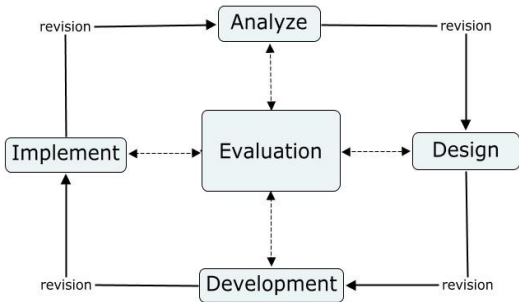

Figure 1. Stages of ADDIE Model Development Research

Analysis

Pre-planning: identifying learning designs that are in accordance with student targets, learning outcomes, identifying learning content/materials, identifying learning environments, and delivery strategies in learning. The product developed is a learning design based on information processing theory.

Design

At this stage, a draft of the learning design is designed. The design is written for each component of the learning design. The research product in the form of the intended learning design is then validated by learning experts in the Biology Education Study Program.

Development

Developing a learning design based on the results of the product design, at this stage the product is made in accordance with the learning design structure whose format has been agreed upon in the Biology Education Study Program. To test the validity of the learning design, a validation instrument sheet has been developed which has been validated by 3 biology learning experts.

Implementation

Starting to use the learning design in a real environment. Reviewing the objectives of product development, interactions between students, and asking several students about their impressions of learning using feedback information processing learning design.

Evaluation

Evaluation is carried out to determine the impact of learning in a critical manner. Measuring the achievement of the objectives of developing learning design. Measuring what students have been able to achieve. Finding information that can make students achieve their learning outcomes optimally.

Learning Design Trial Stage (Experiment)

The experimental method is used to test the effectiveness of learning design using the Posttest Only One Group Design experimental design. This experimental model is depicted as in Figure 2.

$$R \ X \ O_1$$

Figure 2. Posttest Analysis Design Model Only One Group Design

O_1: Posttest in the experimental group
X: Treatment of the application of learning design

Research Instrument

The data collection instruments used in this study consisted of a biology learning expert validation sheet, a

communication skills questionnaire and a collaboration skills questionnaire, and a student learning outcome test.

Learning Expert Validation Sheet

This validation sheet aims to assess the validity of the learning design as assessed by biology learning experts from FKIP Unram. From the results of this expert assessment, the level of academic validity of the learning design will be known. Through this validation sheet, learning experts can provide suggestions for improving the learning design. These suggestions are very useful for improving or revising certain parts of the learning design components.

Communication Ability Assessment Sheet

The ability to convey information simply, without double/ambiguous meanings, and to listen and capture information correctly. Communication ability indicators according to Nofrion (2016) explain in more detail that students' communication skills can be measured by the following indicators: Respect (respecting and appreciating the communicant); Empathy (the ability to listen and be perspective or ready to receive feedback); Audible (the message or information conveyed must be audible); Clarity Information, messages, language conveyed must be clear; and Humble.

Collaboration Ability Assessment Sheet

The instrument for measuring students' collaboration abilities is a collaboration ability questionnaire adapted from Hardianti (2021). The questionnaire is closed where respondents only choose the answer options that have been provided. There are four alternative answers that can be selected, namely always, often, very rarely, and never. The statements in the questionnaire consist of positive statements and negative statements. The scores for positive statements and negative statements on the questionnaire are different. Positive statements, for answers always the score is 4, often the score is 3, rarely the score is 2, and never the score is 1. For negative statements, answers always the score is 1, often the score is 2, rarely the score is 3, and never the score is 4.

Conceptual Understanding Test

The conceptual understanding test is used to measure students' mastery of concepts. The test is developed in the form of a multiple-choice test with reference to the lecture material, namely the biology learning strategy course material. The results of the concept mastery test are used to determine the effectiveness of learning design based on information processing theory.

Data Analysis

Data analysis was carried out using descriptive statistical techniques and inferential statistics. The stages of data analysis of the research results are: Analysis of data from expert validation of learning design; the design draft is validated by biology learning experts using criteria as in Table 1.

Table 1. Criteria for Assessment of Learning Expert Validation Results

Interval (%)	Criteria
75.01 – 100.00	Valid
50.01 – 75.00	Quite Valid
25.01 – 50.00	Not Valid

To determine the impact of the implementation of learning design on students' mastery of concepts, communication skills, and collaboration skills, it was analyzed using multiple linear regression tests. Data analysis used the SPSS program.

Result and Discussion

To obtain data on the implementation of learning in the S1 Biology Education study program, especially in the biology learning strategy (SPB) course, a preliminary study has been conducted using the learning design document analysis method and interviews with lecturers. The information obtained related to the research objectives is: the results of the learning design document analysis; and the results of interviews with SPB lecturers. The intended research results are described as follows.

Learning Design Analysis Results

The learning design components analyzed consist of the S1 Biology Curriculum for the biology learning strategy course, Semester Learning Plan (RPS), and Student Assignment Plan (RTM). The RPS analyzed consists of two main parts. Part I contains the Learning Achievements of Study Program Graduates (CPL-Prodi) charged to the SPB course, Course Learning Achievements (CPMK), Final Competencies (KA) for each learning stage (Sub-CPMK), Brief Description of the Course, Study Materials, and Bibliography. Part I of the RPS is used as a reference in compiling the SPB course learning plan. In part II of the RPS consists of 7 columns containing each column as follows: Weekly Meeting Sequence; Final ability of each learning stage (Sub-CPMK); Assessment; Learning Form, Learning Method, and Student Assignment; Learning Material; Assessment Weight (%); and Reference List.

Interview Results with Students

Interviews were conducted with undergraduate students of Biology Education. The interview results showed that the implementation of biology learning based on information processing theory has provided a different learning experience from other learning models applied by lecturers of other courses in the Biology Education Study Program. The real difference is in the use of Android phones to search for information from the internet related to lecture material. Students become more familiar with browsing techniques to solve problems submitted by each group that analyzes and presents lecture material that is their assignment. The main obstacle faced by students is the problem of internet signals on campus which often experience interference. Most students use their Android phones to communicate in learning activities. Learning carried out through WA groups can be followed by all students. When using Google Meet, Google Classroom, many students can participate in learning due to limited communication tools (cellphones), internet signal constraints. To overcome these problems, students use WAG more in their learning activities when carried out online.

Learning Design Development Stage

The learning design development model used in this study is the ADDIE model. The stages of developing this model consist of the stages of Analysis, Design, Development, Implementation, and Evaluation. Based on the ADDIE model development model, the stages of developing an integrated character biology learning model are as follows.

Analysis Stage

At this stage, the students' readiness and ability to participate in learning, analysis of learning design documents, and the results of interviews with students about the implementation of learning based on information processing theory are analyzed. The results of the analysis show that learning activities require a learning design that is oriented towards strengthening 21st century soft skills in an integrated manner through learning activities. This is because the learning design used as a reference for learning so far has not been planned to strengthen 21st century soft skills.

Design Stage

At this stage, a draft of the learning design is designed and written for each component of the learning design. The learning design developed consists of a design orientation that provides an overview of the learning theory referred to in the development of the design, and the components of the learning design. The learning design based on information processing theory consists of the RPS and RTM of the course. The learning design based on information processing theory consists of the RPS and RTM of the course.

Development Stage

Based on the results of the product design, at this stage a draft of the learning design is created that contains the syntax of learning based on information processing theory. Then create an instrument to measure the validity of the learning design. Jamaluddin et al. (2022) have developed a Biotics learning model based on the information processing learning (Redhana, 2019). The learning theory in question is "Information Processing Learning Theory". This theory is a description or model of activities in the human brain when processing information. This theory is used as a reference in developing learning designs. Learning activities that refer to this device focus on activities related to information search activities, information processing, and use of information to improve student capabilities through learning. Information processing learning is in line with cognitive learning theory (Piaget) and is oriented towards students' ability to process information which is expected to improve their competence. Information processing refers to how to collect/receive information/data, organize data, solve problems, find concepts, and use verbal and visual symbols (Widyanti, 2017). The learning syntax developed based on information processing theory with the following learning steps or phases.

Instructional Impact of Information Processing Learning

The application of learning design based on information processing theory that has been developed in this study has the following instructional impacts 21st Century Soft Skills. Achmadi et al. (2020) have identified 10 21st century soft skills that are important for students to master, namely: Social responsibility and accountability; Communication; Professional ethics; Adaptation; Collaboration; Creativity and innovation; Problem solving; Self-awareness; Critical and logical thinking; and Tolerance of diversity. 21st century soft skills or known by the abbreviation 4C, namely Critical Thinking or critical thinking, Collaboration or the ability to work well together, Communication, or the ability to communicate, and Creativity or creativity. In searching for information related to their learning materials via their Android phones, students are expected to be able to develop their abilities in utilizing communication and information technology which is then processed collaboratively from various online learning sources. creative, innovative, communicative, collaborative, information and media literacy, and so on.

Table 2. Stages of learning implementation

Learning Stages	Learning Activities	21st Century Soft Skills Developed
Introduction	Motivating student learning Asking questions that relate previous knowledge to the material to be learned Informing learning objectives Informing learning materials Informing stages of learning activities.	Critical Thinking Communication Skills
Finding Information	Students search and find learning resources from various learning resources on the internet. Then write the web address of the learning resource.	Creative Thinking Critical Thinking Collaborative Skills Communication Skills
Analyzing Information	Students read learning materials Students write questions The lecturer selects questions to be discussed, and asks questions to be discussed in groups. Students discuss in groups to find answers to questions asked by the teacher	Communication Skills Collaboration Skills Critical Thinking Creative Thinking
Storing Information	Students write a 1-page summary of the learning material. The summary content can be in the form of understanding; definition; facts; concepts; procedures, metacognition; and examples and other materials that are considered important.	Critical Thinking Creative Thinking Collaboration Skills Communication Skills
Using Information	The lecturer asks students to discuss to find examples of the application of the subject matter in everyday life. Students are assigned to create a Power Point (PPT) and present information or learning outcomes. The lecturer guides the class discussion	Collaboration Skills Creative Thinking Critical Thinking Communication Skills
Closing	The lecturer conducts a formative test and students answer questions. The lecturer assigns students to report their learning outcomes in the form of a Learning Journal The lecturer and students reflect on the process and results of learning activities, to improve subsequent learning.	Creative Thinking Critical Thinking Communication Skills Collaboration Skills Metacognitive Awareness

Concept Understanding

Through reviewing information about learning materials written in their RTM, students can improve their understanding to adapt to the rapid development of information technology.

Critical thinking

One of the 21st century soft skills is critical thinking, through analyzing learning materials in finding important concepts and writing them in learning journals can train students' soft thinking skills.

Creative Thinking

Creative thinking (Creativity) is the ability to convey and develop new ideas to others, be responsive and open to new and different perspectives. Indicators of creative thinking include students having the ability to realize the combination of new ideas, and being able to produce new discoveries or innovations that are usually economically valuable.

Communication skills

Oral and written communication skills are very important to be trained in students because this soft skill is one of the 21st century soft skills needed by students in interacting with others.

Collaboration skills

Collaboration is a student's soft skill to synergize, work productively with others, adapt to various responsibilities and roles, respect different perspectives, and put empathy in its place. Students who have soft skills to collaborate have characteristics including being able to carry out responsibilities, and having good personal flexibility.

The research product in the form of a learning design based on information processing theory was validated by biology learning experts, and its feasibility was assessed by biology lecturers. The instruments used to validate and assess the feasibility used expert validation sheets, and learning design feasibility questionnaires. The results of the validation and assessment of the feasibility of the biology learning

model based on information processing theory are as follows.

Table 3. Learning Design Validation Results by Biology Learning Experts

Assessment Components		Member Ratings				Validity Criteria
	I	II	III	Average	%	
Background	4	4	4	4	100	Valid
Purpose of developing Learning Design -	4	4	4	4	100	Valid
Supporting Theory of Learning Design	3	3	3	3	75	Fairly Valid
Learning theory used	4	4	3	3.67	91	Valid
Stages/Steps of activities in RPS	3	3	3	3	75	Fairly Valid
Social system in learning design	4	3	3	3.33	83	Valid
Learning design support system	4	3	3	3.33	83	Valid
Instructional impact of learning design	4	4	3	3.67	91	Valid
Accompanying impact of implementing learning design	3	3	3	3.00	75	Fairly Valid
Accompanying impact of implementing learning design	4	4	3	3.67	91	Valid
Design reaction principle	4	4	3	3.67	91	Valid
Stages of learning activities in RPS	3	3	4	3.33	83	Valid
Average score and Validity	44	42	39	41.67	86.81	Valid

Based on the validation results of three biology learning experts, the analysis results show that the learning design based on information processing theory is declared valid. Based on this, the learning design can be applied in learning.

Data Analysis Results of Learning Design Application

The analysis of research data was carried out using descriptive statistical analysis and inferential statistical analysis to test the research hypothesis. Both types of statistical analysis aim to determine the effectiveness of the application of learning design on communication skills, collaboration skills, and students' conceptual understanding. The number of research samples was 71 students. Data analysis with descriptive statistics needs to be carried out to provide an overview of data on the minimum value, maximum value, mean, and standard deviation of each variable X1 (communication skills), X2 (Collaboration Skills, and X3 (conceptual understanding). The results of the descriptive statistical test are shown in Table 4.

Table 4. Hasil Uji Statistik Deskriftif

Skills	N	Minimum	Maximum	Mean	Std. Deviation
Communication	69	55.00	95.83	84.5772	8.19434
Collaboration	69	40.83	75.00	64.0335	5.53604
Understanding Concepts	69	45.00	87.00	67.1739	9.27831
Valid N (listwise)	69				

Based on the results of the statistical test, the following things can be described: Communication skills, collaboration skills, and conceptual understanding show differences in the range of the three data groups. Quoting from the book Statistic Hospitality: edition revision by Santosa (2018), Range shows the variability in the number of score distributions around the mean. Based on the results of the descriptive statistical analysis, it means that the variability in the distribution of data from Communication skills, collaboration skills, and conceptual understanding with different ranges has a different amount of variability or dispersion.

Of the three variables measured, there are differences in the mean. The mean is the average value in a data set calculated by adding all the values and dividing it by the number of data. The mean is one measure of central symptoms. The mean can be said to be a representative of the data set. Based on the results of the statistical analysis, it can be seen that the mean of Communication skills, collaboration skills, and conceptual understanding shows differences. This means that the average of the total score of all answers given by respondents, which are arranged in different data distributions.

Standard deviation is a number that measures the spread of a data group against the average value of the data (mean). This means that the standard deviation or standard deviation shows the distance of each data point from the average value. From the results of the data

analysis in Table 4, it provides an illustration that the standard deviation of each measured variable is different. The standard deviation is used to see how far the data distribution is from the average or mean. This provides an illustration that the distribution of data to the mean of communication skills, collaboration skills, and conceptual understanding is different.

Based on the data in Table 4, an effectiveness test can be carried out on learning design based on information processing theory for 21st century soft skills and understanding of the concept of biology learning strategies for undergraduate students of Biology Education. The data analysis method uses the Posttest Only One Group Design experimental design. Data analysis uses the help of SPSS 26 software. The results of the intended effectiveness test are as follows.

Table 5. T-Test One-Sample Statistics

Skilss	N	Mean	Std. Deviation	Std. Error Mean
Communication	69	84.5772	8.19434	0.98648
Collaboration	69	64.0335	5.53604	0.66646
Understanding Concepts	69	67.1739	9.27831	1.11698

Table 6. One-Sample Test

Skills				Test Value = 70	95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Communication	14.777	68	0.000	14.57725	12.6088	16.5457
Collaboration	-8.953	68	0.000	-5.96652	-7.2964	-4.6366
Understanding Concepts	-2.530	68	0.014	-2.82609	-5.0550	-.5972

Results of the Design Effectiveness Test on Communication Skills
Research hypothesis

The application of learning design based on information processing theory is effective for communication skills.
Statistical hypothesis
Ho: μ = 70
H1: $\mu \neq$ 70
At a significance level of 95%, or α = 0.05
Analysis results:
p-value =0.000
Criteria used α =0,05
Accept Ho if p-value > 0.05
Reject Ho if p-value < 0.05
H1: $\mu \neq$ 70
At the level of significance 95%, or α = 0.05
Analysis results
p-value =0.000
Criteria used α =0.05
Accept Ho if p-value > 0.05
Tolak Ho jika p-value < 0.05
p-value = 0.000 , α = 0.05 so Ho accepted

Conclusion

The application of learning design based on information processing theory is effective for the collaboration skills of students of the Biology Education Undergraduate Program, FKIP, Mataram University.

p-value = 0.000, α = 0.05 so Ho rejected

Conclusion

The application of learning design based on information processing theory is effective for communication skills of students of the Biology Education Study Program, FKIP, Mataram University.

Results of the Design Effectiveness Test on Collaboration Skills.
Research hypothesis

The application of learning design based on information processing theory is effective for Collaboration skills.
Statistical hypothesis
Ho: μ = 70

Results of the Effectiveness Test of Learning Design on Concept Understanding
Research hypothesis

The application of learning design based on information processing theory is effective for understanding the concept of biology learning strategies
Statistical hypothesis:
Ho: μ = 70
H1: $\mu \neq$ 70
At the level of significance 95%, or α = 0.05
Analysis results
p-value =0.000
Criteria used α =0,05
Accept Ho if p-value > 0.05
Rejected Ho if p-value < 0.05
p-value = 0.000, α = 0.05 so Ho accepted

Conclusion

The application of learning design based on information processing theory in learning i is effective for understanding the concept of biology learning strategies.

Based on the results of statistical analysis using the t-test, it can be stated that the application of learning design in the biology learning strategy lecture is effective for students' soft skills, especially communication skills, collaboration skills, and understanding the concept of biology learning strategies in prospective biology teacher students at the FKIP University of Mataram.

Conclusion

The learning design developed through this research is a learning design aimed at strengthening students' 21st century soft skills, especially in communication skills and collaboration skills. The stages of core learning activities that are characteristic of the learning design are Searching for information; analyzing information; storing information; and using information. The results of the validation by biology learning experts stated that the learning design was valid. The results of the data analysis found that the learning design for communication skills, collaboration skills, and students' conceptual understanding.

Author Contributions
The author J wrote the draft article based on the JPPIPA template and revised it based on the corrections from AR and AWJ, as well as the review results from the JPPIPA editor.

Conflicts of interest
There are no conflicts of interest associated with this research. The funders had no role in the design of the study; in the collection, analysis, or interpretation of data; in the writing of the manuscript; or in the decision to publish the results.

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