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The Validity E-modules of Riau Local Wisdom Based to Enhance Students' Creative Thinking through Research

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ABSTRACT: Good teaching materials in learning need to include facts and phenomena. In addition, it provides opportunities for students to carry out research activities to practice creative thinking skills. The study aims to describe the validity of e-modules that can enhance students' creative thinking skills through utilizing the environment as a learning resource based on Riau's local wisdom to maintain the sustainability of the ecosystem through student research activities. This study uses a development model with research and development (R&D) methods which refer to the 4D development model. The research instrument used in this study is an e-module validation sheet for education expert lecturers and material expert lecturers to be analyzed quantitatively and qualitatively from the aspects of content feasibility, presentation feasibility, and linguistic feasibility. Based on the validation carried out, the average validity score of all aspects was 89,74% with very valid criteria. The validity score includes aspects of content feasibility of 90,71% with a very valid category, 89,17% presentation feasibility with a very valid category and linguistic feasibility of 89,35% with a very valid category. These results indicate that the developed e-module is suitable for use in learning biology on environmental pollution materials. Based on the student response questionnaire, the overall e-module eligibility category was 94%. The presentation feasibility aspect was 94,28%, language feasibility was 92%, and content feasibility was 93,34%, each with a very positive category. This means that e-modules that have been developed can support students to think creatively.

KEYWORDS: Creative thinking, E-module, Lokal wisdom, Research, and Validity

I. INTRODUCTION

In the 21st century, competition between individuals is getting tougher, including in the field of education. Schools are required to facilitate students' 4C abilities, namely creative thinking skills, critical thinking and problem solving, communication, and collaboration (Kemendikbud, 2017). In addition, strengthening the character of love for the nation through understanding local wisdom is needed by students so that Indonesia is able to become an independent nation.

Characteristics of creative students who have self-confidence, independence, responsibility and commitment to assignments, do not run out of ideas in creative thinking, and are rich in initiative. The goal of National Education is to develop the potential of students to become creative human beings (Sabaniah et al., 2019). Indicators of creative thinking skills are fluency (fluency in thinking, generating many ideas, and alternative answers) flexibility (generating ideas from different perspectives) originality (generating new ideas), elaboration (developing detail) (Hu & Adey, 2002). Creative thinking skills of students require learning conditions that involve learning experiences, so that students' creative thinking skills can develop (Handayani et al., 2020). Creative thinking is the key to developing student creativity. Increasing students' creative thinking skills can increase knowledge, increase interest, and self-confidence as well as creative reflection. The scientific creativity of students who carry out experimental activities in learning is higher than students who have never carried out experiments (Ceran et al., 2014). Low student creative thinking skill is caused because of teaching materials used in learning have not included facts and phenomena that provide opportunities for students to carry out investigation and solving activities (Febrianti et al., 2016). Supported by the results of research that the creative thinking ability of students by utilizing the environment as a learning resource, namely showing fluent skills with very good criteria (83,76%); flexible skills with very good criteria (89,1%); original skills with good criteria (79,9%); detailing skills with good criteria (79,9%); and evaluation skills with very good criteria (86,30%).

The research-based learning process reveals the power of the natural surroundings to be meaningful for students. Local wisdom in an area is a culture that needs to be preserved so that the values of this wisdom are maintained (Usmeldi, 2016). There are facts and phenomena related to local wisdom in Riau, including habits that occur continuously so that it causes environmental pollution, peat soil problems with various efforts to overcome them through the use of cellulolytic bacteria derived from peat soil, and rituals that exist in Riau have a negative impact on the environment. Environment causing pollution. Therefore, with the existence of this e-module, it can direct students to solve problems related to this. The pandemic era demands a learning process that facilitates

independent students supported by an electronic basis due to the limitations of face-to-face offline, so that learning devices are in the form of electronic-based modules by prioritizing local wisdom needs to be developed to facilitate the emergence of creative indicators. Learning oriented to local wisdom is believed to be able to improve problem solving skills to support the strengthening of creative thinking indicators (Sabaniah et al., 2019).

The application of e-modules is expected to support the implementation of online learning. The use of e-modules helps students become independent, motivated, focused, and appropriate learners according to the material (Ernawati & Susanti, 2021). According to the 2013 curriculum, learning must follow the development of the era of globalization, which is integrated with Information and Communication Technology (Amirullah & Susilo, 2018). This research is relevant to (Muzijah et al., 2020), the development of e-modules to train students' scientific literacy which can be seen from the increase in learning outcomes after using e-modules using the exe-learning application. The results of the N-Gain test showed an increase which was included in the moderate category so that the e-module developed had effectively enhanced students' scientific literacy.

Therefore, this study intends to develop an e-module based on Riau local wisdom to train creative thinking skills through research activities.The aim of this research is to describe the validity of e-modules that can enhance students' creative thinking skills through utilizing the environment as a learning resource based on Riau's local wisdom. In addition, maintaining the continuity of the ecosystem through student research activities in terms of theoretical feasibility and empirical feasibility (student responses).

II. METHODOLOGY

This study uses development research with research and development (R&D) methods which refer to the 4D development model (Thiagarajan, 1976). It consists of four stages (4D) namely defining, designing, developing and disseminating, but this stage is not carried out. Development of e-modules on material for tenth graders of senior high school, Basic Competence (KD) 3.11 Analyzing data on environmental changes, their causes, and their impact on life and 4.11 Formulating ideas for solving problems of environmental changes that occur in the surrounding environment. The research instrument used in this study is an e-module validation sheet for education expert lecturers and material expert lecturers. This validation sheet contains written questions to obtain assessments and suggestions regarding the e-module validation results which consist of aspects of content feasibility, presentation feasibility, and linguistic feasibility. The validation sheet is used as a reference in determining the category of learning devices. This validation is done by conveying the grid, instrument items, and sheets given to experts to be studied quantitative and qualitative (Fatmawati, 2016). The evaluation of the e-module validation was carried out using a validation sheet that was assessed using the Likert Scale guidelines in Table 1 as follows:

Table 1: Assessment based on Likert Scale

Scale	Interpretation Criteria
4	excellent
3	good
2	fair
1	poor

Source: adapted from (Arikunto, 2013).

Based on the score obtained, then it is used to calculate the validity score using the following formula:

Validity score (%) = $\frac{\sum \text{score obtained}}{\text{max score}} \times 100\%$

The calculation results obtained are then interpreted in the eligibility criteria in Table 2 as follows:

Table 2: Feasibility Interpretation of Validity Criteria

Percentage (%)	Interpretation Criteria
0-50	Less valid
50,01-70	Quite valid
70,01-85	Valid
85,01-100	Very valid

Source: adapted from (Arikunto, 2002).

The data collection process uses the Likert scale validation method with four interpretation criteria (Arikunto, 2002). Based on Table 2, the development of e-modules based on Riau local wisdom to improve students' creative thinking skills through research is said to be valid or very valid if the percentage is ≥ 61%. In addition to validity data, this research is accompanied by supporting data in the form of student responses. Data on the results of student responses were obtained through a student response questionnaire given to the e-module on environmental pollution material. The number of students is 15 people. Student responses

were measured using the Guttman Scale, which is a scale used for firm and consistent answers. The student response questionnaire is in the form of a Gform which contains questions with "yes" and "no" answer choices. The questionnaire was assessed using the scale in Table 3.

Table 3: Guttman scale criteria

Answer	Category
Yes	1
No	0

Source: adapted from (Riduwan, 2010).

To find out the percentage of student responses regarding the quality and interest in the developed e-module, it can be analyzed using the following formula:

Percentage of positive response $= \frac{Number\ of\ aspects\ implemented\ "yes"}{The\ sum\ of\ all\ aspects} x\ 100\%$

The results of the percentage of student activity are then interpreted according to Table 4.

Tabel 4: Criteria for interpreting student responses

Percentage (%)	Kategori
0-30	Not good
31-54	Less good
55-74	Quite good
75-87	good
88-100	Very good

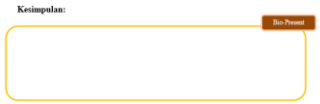
Source: adapted from (Riduwan, 2010).

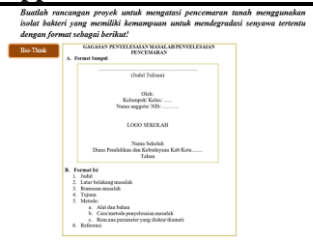
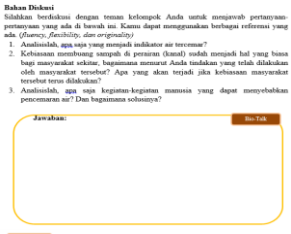
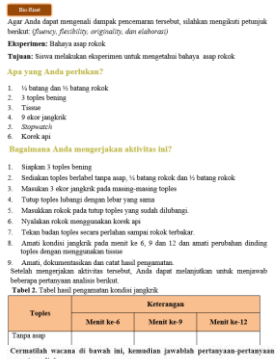
The developed e-module is declared to be of good value if the percentage of students' positive responses reaches ≥75%

III. RESULT AND DISCUSSION

This research is the result of e-module validation based on Riau local wisdom to enhance students' creative thinking skills through research activities. The developed e-module contains features that help students understand material based on local Riau wisdom and train creative thinking skills through questions and research activities carried out.

Table 5: Appearance and features of e-module

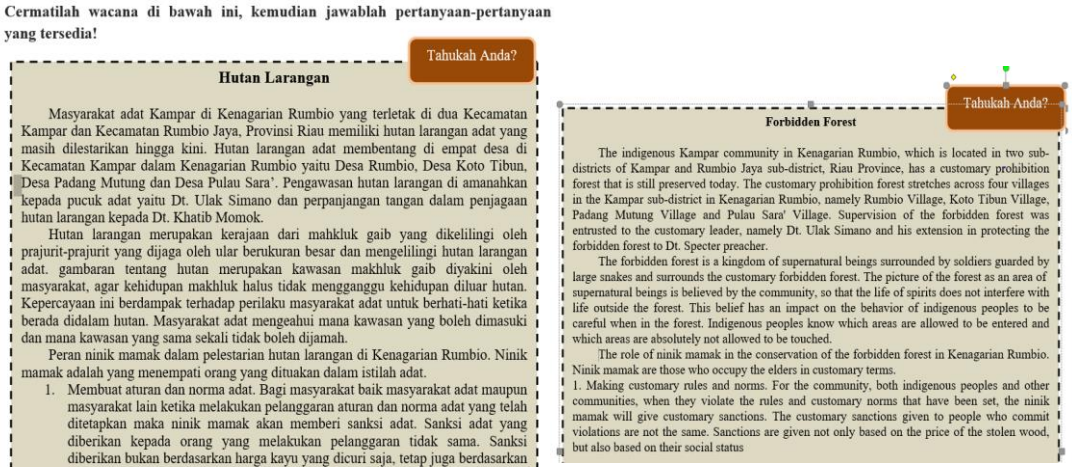
No	Appearance and features	Description
1		The cover is designed in a simple way that displays the title of the material, the appropriate pictures, the school level, the Unesa logo, the author's name, and the name of the supervisor.
2		Bio-exploration contains facilities for building knowledge. Learners to practice creative thinking in identifying problem phenomena (flexibility)
3		Bio present contains assignments as a means for students to analyze data and draw conclusions to practice creative thinking skills (fluency)

No	Appearance and features	Description
4		Bio think contains problem topics as a means for students to create and explain hypotheses to design problem solving based on Riau local wisdom (originality and elaboration).
5		Bio talk contains a means of discussion as a complement to the interactive aspect, namely two-way communication, between students and friends and teachers.
6		Bio research contains practicum activities as a means for students to design research-based problem solving through scientific method activities (research-based and originality)
7		Trivia contains examples of local wisdom in Riau.

The components of creative thinking include fluency, flexibility, originality, and elaboration. In the fluency aspect, the e-module is able to describe various material concepts about environmental pollution in everyday life, so that students always think of many ideas and are able to answer with many ideas (Sabaniah et al., 2019). Aspects of flexibility in the e-module, students are required to be able to provide arguments about the causes and effects of a problem, fluently to provide arguments about an issue, or take flexible decisions on existing problems as outlined in the form of questions (Sabaniah et al., 2019). Aspects of Originality in the e-module, students are required to be able to find unique ideas/ideas, provide authenticity of ideas on a problem, or provide a number of new ideas that are different from existing ones (Sabaniah et al., 2019). This is stated in the form of project assignments to train students to develop ideas in solving a problem of environmental pollution. The elaboration aspect of the e-module allows students to be able to describe an idea in detail (Febrianti et al., 2016). This aspect is outlined in the problem of solving environmental pollution problems through a paper by taking detailed steps and developing other people's ideas. This is supported by research that in the fluency aspect students are able to describe various concepts of material application in real life, the originality aspect is able to lead students in solving a problem, the flexibility aspect is able to show students' creativity in providing different interpretations of certain objects, then the elaboration aspect is able to elaborate unique ideas and thoughts based on the examples given (Wahyuni and Rahayu, 2021). Enhance students' creative thinking skills in a way that students can understand and carry out activities based on scientific concepts in everyday life. compose yourself. In addition, students can arrange their own questions or opinions and solve problems that seek various opinions (Agustina et al., 2021).

Local wisdom in e-modules includes facts or phenomena that actually occur in Riau. Among them are pollution that occurs due to habits that are continuously carried out by the community, and rituals carried out at certain times which can cause an impact on environmental pollution. This local wisdom is presented in the form of a feature you know, implied in questions, and research activities based on facts and phenomena that occurred in Riau. Through these activities, students can recognize Riau's local wisdom and know the facts and phenomena that occur related to environmental pollution so that they are expected to be able to solve the problems that occur. This is in accordance with the statement (Faiz & Soleh, 2021), Local wisdom in an area is a culture

that needs to be preserved so that the values of the wisdom are maintained. 21st century learning emphasizes the 4Cs, one of which is creativity. To form an innovative personality, an approach to local wisdom is needed, one of which is by paying attention to the local wisdom of the local area. An example of your tofu feature is shown in (Figure 1) below.



Cermatilah wacana di bawah ini, kemudian jawablah pertanyaan-pertanyaan yang tersedia!

Tahukah Anda?

Hutan Larangan

Masyarakat adat Kampar di Kenagarian Rumbio yang terletak di dua Kecamatan Kampar dan Kecamatan Rumbio Jaya, Provinsi Riau memiliki hutan larangan adat yang masih dilestarikan hingga kini. Hutan larangan adat membentang di empat desa di Kecamatan Kampar dalam Kenagarian Rumbio yaitu Desa Rumbio, Desa Koto Tibun, Desa Padang Mutung dan Desa Pulau Sara'. Pengawasan hutan larangan di amanahkan kepada pucuk adat yaitu Dt. Ulak Simano dan perpanjangan tangan dalam penjagaan hutan larangan kepada Dt. Khatib Momok.

Hutan larangan merupakan kerajaan dari mahkluk gaib yang dikelilingi oleh prajurit-prajurit yang dijaga oleh ular berukuran besar dan mengelilingi hutan larangan adat. gambaran tentang hutan merupakan kawasan makhluk gaib diyakini oleh masyarakat, agar kehidupan makhluk halus tidak mengganggu kehidupan diluar hutan. Kepercayaan ini berdampak terhadap perilaku masyarakat adat untuk berhati-hati ketika berada didalam hutan. Masyarakat adat mengeahui mana kawasan yang boleh dimasuki dan mana kawasan yang sama sekali tidak boleh dijamah.

Peran ninik mamak dalam pelestarian hutan larangan di Kenagarian Rumbio. Ninik mamak adalah yang menempati orang yang dituakan dalam istilah adat.

1. Membuat aturan dan norma adat. Bagi masyarakat baik masyarakat adat maupun masyarakat lain ketika melakukan pelanggaran aturan dan norma adat yang telah ditetapkan maka ninik mamak akan memberi sanksi adat. Sanksi adat yang diberikan kepada orang yang melakukan pelanggaran tidak sama. Sanksi diberikan bukan berdasarkan harga kayu yang dicuri saja, tetap juga berdasarkan

Tahukah Anda?

Forbidden Forest

The indigenous Kampar community in Kenagarian Rumbio, which is located in two sub-districts of Kampar and Rumbio Jaya sub-district, Riau Province, has a customary prohibition forest that is still preserved today. The customary prohibition forest stretches across four villages in the Kampar sub-district in Kenagarian Rumbio, namely Rumbio Village, Koto Tibun Village, Padang Mutung Village and Pulau Sara' Village. Supervision of the forbidden forest was entrusted to the customary leader, namely Dt. Ulak Simano and his extension in protecting the forbidden forest to Dt. Specter preacher.

The forbidden forest is a kingdom of supernatural beings surrounded by soldiers guarded by large snakes and surrounds the customary forbidden forest. The picture of the forest as an area of supernatural beings is believed by the community, so that the life of spirits does not interfere with life outside the forest. This belief has an impact on the behavior of indigenous peoples to be careful when in the forest. Indigenous peoples know which areas are allowed to be entered and which areas are absolutely not allowed to be touched.

The role of ninik mamak in the conservation of the forbidden forest in Kenagarian Rumbio. Ninik mamak are those who occupy the elders in customary terms.

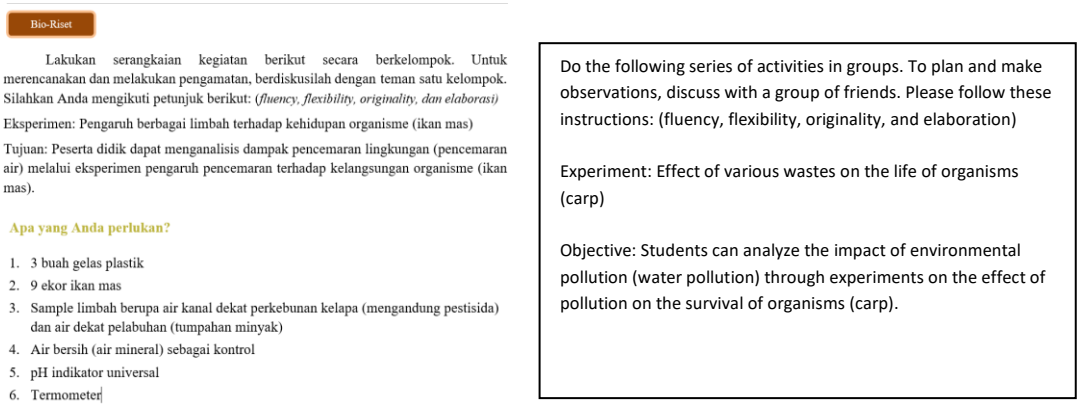
1. Making customary rules and norms. For the community, both indigenous peoples and other communities, when they violate the rules and customary norms that have been set, the ninik mamak will give customary sanctions. The customary sanctions given to people who commit violations are not the same. Sanctions are given not only based on the price of the stolen wood, but also based on their social status

(a) (b)

Figure 1: (a) amd (b) Local Wisdom Content

Then students were asked to understand what the meaning of Riau's local traditions/wisdom was and then wrote down the results of the exploration, identified the positive value of this local wisdom for the environment in an effort to reduce environmental pollution, and analyzed the role of indigenous peoples in preserving the forbidden forest. Forests as a source of life for humans wind (oxygen) and water are sources of human life that cannot be replaced by other elements, even the second element is to maintain the continuity of human life. The two elements of wind and water and in the middle is where humans live so that they will get these two sources of life. Existence above and below the two sources of life will be a continuous cycle of interaction to maintain the continuity of human life.

The components of research activities in the e-module include simple research activities in the form of practicum. Through research activities, it can create curiosity and train creative thinking. Project activities designed by students themselves will make students motivated to express ideas and try to find deeper ways to solve a problem (Wahyuni and Rahayu, 2021). Based on (Arisanti et al., 2017), Students play an important role in devoting and collecting ideas to solve problems. The research components consist of background problems, procedures, research results, discussion, and publication of research results. The research-based learning model consists of five steps, namely: (1) formulating problems, (2) collecting data through practicum, (3) interpreting and concluding, (4) compiling research reports, and (5) presenting research reports (Usmeldi, 2016). According to (Arisanti et al., 2017), the research making a research-based module on the isolation of pathogenic fungi on cloves can be used as a learning resource for students with the results showing 71.09% that the module can be used in the field with very feasible and valid qualifications. An example of your tofu feature is shown in (Figure 2) below.



Bio-Riset

Lakukan serangkaian kegiatan berikut secara berkelompok. Untuk merencanakan dan melakukan pengamatan, berdiskusilah dengan teman satu kelompok. Silahkan Anda mengikuti petunjuk berikut: (*fluency, flexibility, originality, dan elaborasi)*

Eksperimen: Pengaruh berbagai limbah terhadap kehidupan organisme (ikan mas)

Tujuan: Peserta didik dapat menganalisis dampak pencemaran lingkungan (pencemaran air) melalui eksperimen pengaruh pencemaran terhadap kelangsungan organisme (ikan mas).

Apa yang Anda perlukan?

1. 3 buah gelas plastik
2. 9 ekor ikan mas
3. Sample limbah berupa air kanal dekat perkebunan kelapa (mengandung pestisida) dan air dekat pelabuhan (tumpahan minyak)
4. Air bersih (air mineral) sebagai kontrol
5. pH indikator universal
6. Termometer

Do the following series of activities in groups. To plan and make observations, discuss with a group of friends. Please follow these instructions: (fluency, flexibility, originality, and elaboration)

Experiment: Effect of various wastes on the life of organisms (carp)

Objective: Students can analyze the impact of environmental pollution (water pollution) through experiments on the effect of pollution on the survival of organisms (carp).

(a) (b)

Figure 2: (a) and (b) Research activity content

Through research activities on the effects of various wastes on the life of organisms (goldfish) using the Bio-Research feature, students can conduct simple research to practice creative thinking skills. Students are required to be able to formulate problems, collect data through practicum, interpret and conclude, compile research reports, and present research reports. Students can

analyze the impact of environmental pollution (water pollution) through experiments on the effect of pollution on the survival of organisms (goldfish). The water sample used adjusted to the conditions that occurred in the area where the students lived, namely canal water (artificial river) near coconut plantations (containing pesticides) and water near the harbor (oil spill) and clean water (minerals) as controls. Students observed the movement of the operculum in 1 minute every 5 minutes, for 15 minutes and the number of fish that died every 5 minutes, for 15 minutes. The results of expert validation carried out by three expert validators include education expert lecturers, material expert lecturers, and Ar Raudhah High School Biology teachers so that a valid e-module is produced to be applied. The validation results are as follows.

Table 6: Results of e-module validation based on Riau local wisdom to train students' creative thinking skills through research activities

No	Rated Aspect	Average score	Score (%)	Category
Content feasibility				
1	Material concept quality	3,73	93,37	Very valid
2	There are features that are displayed including Bio-Explore, Bio-Think, Bio-Creative, Bio-Talk, Bio-Present, and *Tahukah Anda*	3,73	93,37	Very valid
3	There is a training that trains creative thinking skills	3,73	93,37	Very valid
4	Introducing Riau's local wisdom	3,73	93,37	Very valid
5	Research based	3,73	93,37	Very valid
6	Foreword	3,17	79,16	Very valid
7	Instructions for using e-module	3,67	91,67	Very valid
8	Material content	3,33	83,33	Very valid
9	References	3,50	87,50	Very valid
10	Completeness of environmental pollution materials	4,00	100,00	Very valid
11	Recency and contextual Concept	3,59	89,77	Very valid
12	There is a concept map	3,67	91,67	Very valid
13	There is a summary	3,67	91,67	Very valid
14	There is an answer key	3,67	91,67	Very valid
15	There is a glossary	3,67	91,67	Very valid
validity score			**90,71**	**Very valid**
Presentation feasibility				
1	Display quality	3,44	86,11	Very valid
2	Layout quality	3,67	91,67	Very valid
3	Text quality	3,56	88,89	Very valid
4	Image quality	3,67	91,67	Very valid
5	E-module quality	3,50	87,50	Very valid
validity score			**89,17**	**Very valid**
Linguistic feasibility				
1	Language use	3,50	87,50	Very valid
2	Language Structure	3,33	83,33	Very valid
3	Use of Terms	3,89	97,22	Very valid
validity score			**89,35**	**Very valid**
Average validity score			**89,74**	**Very valid**

Based on the validation carried out, the average validity score of all aspects was 89,74% with very valid criteria. These results indicate that the developed e-module is suitable for use in learning biology on environmental pollution materials. Each of the validity scores, namely the content feasibility aspect of 90,71% with a very valid category, 89,17% presentation feasibility with a very valid category and linguistic feasibility of 89,35% with a very valid category.

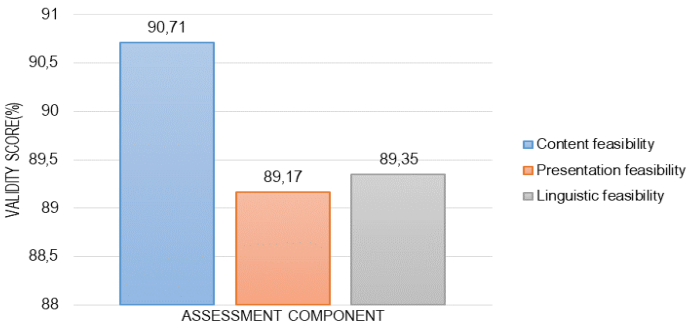


Figure 3: Validitas e-modul

However, revisions need to be made according to the validator's input as shown in Table 7. as follows:

Table 7: Recapitulation of the results of improving e-modules based on Riau local wisdom to train students' creative thinking skills through research activities

No	Improvement suggestions	Results of revision
1	Direct reference sources are included so that it doesn't take too long	Reference sources have been added so that students can immediately find the source
2	Local wisdom should be given examples of traditions or local wisdom that prevent/overcome environmental pollution (not those that cause environmental pollution).	Improvements have been made to examples of local wisdom on the "did you know" feature which prevents/resolves environmental pollution (not what causes environmental pollution)
3	Practicum time that is too long can cause crickets to die	Reducing the length of practicum time so that the crickets don't die first
4	Good and correct writing format	The writing format is adapted to good and correct writing
5	Added an image in each waste instance.	An image has been added to each waste sample.
6	The colors are tried to be more varied, because in the module, the color is still dominant brownish yellow.	Another color has been added to make it more varied.
7	Every image in the module must include its source.	Already included the source of each image in the e-module.

Students are given a questionnaire as supporting data to find out students' responses to the feasibility of the e-module that has been developed. Calculations based on the Guttman scale. The student response questionnaire has 20 questions which are a reference for the feasibility of the e-module being developed. A total of 15 students filled out the response questionnaire, so the maximum eligibility score was 300. Thus the e-module eligibility percentage is:

Percentage of positive response $= \frac{Number\ of\ aspects\ implemented\ "yes"}{The\ sum\ of\ all\ aspects} x\ 100\%$

Percentage of positive response

$$= \frac{282}{300} x\ 100\%$$

Percentage of positive response $= 94\%$

Based on the student response questionnaire, the e-module feasibility category developed with environmental pollution material was 94%. Therefore it is classified as a very positive category because it reaches ≥70%. This means that the developed e-module is very good or very positive to be used in the biology learning process on environmental pollution material. A detailed explanation of the feasibility of each student's response as shown in (Figure 4)

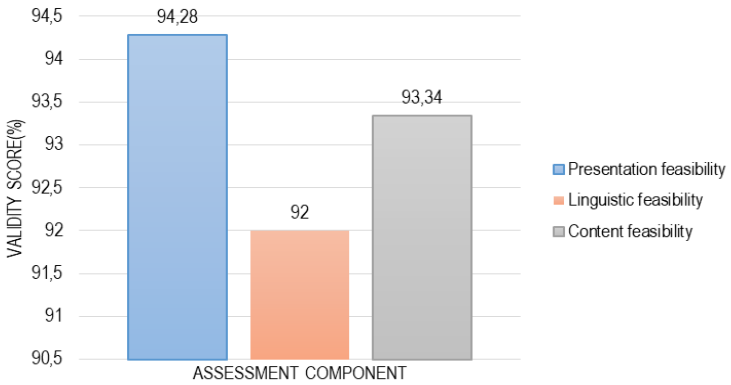


Figure 4: Student response

The The aspect of presentation feasibility was 94,28%, linguistic feasibility was 92,00%, and content feasibility was 93,34% each with a very positive category. This means that students respond positively to the e-module that has been developed.

The presentation feasibility component includes display quality, layout quality, text quality, image quality, and e-module quality. Then packaged in electronic form to make it easier for students to understand the material without being hindered by space and time. In accordance with the opinion (Wahyuni and Rahayu, 2021), if the media is packaged in electronic form it will attract

students to increase interest in learning and make it easier for students to access anywhere and anytime. According to (Faridah et al., 2022) the presentation of e-modules is arranged systematically, the display design is attractive, and interactive. This component has not received the maximum validation value because there are still several elements that have not been fulfilled, especially the quality of the e-module and the design of the e-module which has not varied and the color is still dominantly brownish yellow.

The content feasibility component includes the quality of the material concept, the presence of features (Bio-explore, Bio-think, Bio-research, Bio-talk, Bio-present, and Did you know), there are indicators of creative thinking (fluency, flexibility, originality, and elaboration) in case questions, introducing Riau local wisdom related to environmental pollution, based on research through practical activities and scientific thinking activities, introductions, instructions for using e-modules, material content, completeness of environmental pollution materials (water pollution, air pollution, and pollution land), as well as the recency and contextuality of the concept. In accordance with the opinion (Faridah et al., 2022), the preparation of the contents of the e-module is arranged systematically and adapted to the learning objectives. This component still has not received a maximum validation value because there are still several elements that have not been fulfilled, especially the introduction of Riau local wisdom which is still small, instructions for using e-modules, material concepts, and contextual updates of concepts.

The linguistic feasibility component includes the use of language that is communicative, easy to understand, straightforward, and informative; the structure of the language includes in accordance with PUEBI (General Guidelines for Indonesian Spelling), does not cause double meaning, and sentence coherence between paragraphs; and use of terms includes using appropriate biological terms, using terms consistently, and supporting concept achievement. This is in accordance with (Agustin & Rahayu, 2020), that writing must be in accordance with PUEBI (General Guidelines for Indonesian Spelling), grammar represents the content of the message to be conveyed, language style does not cause double meaning and elements of discrimination, sentences are not complicated, the language used is clear so that it is easy for students to understand.

CONCLUSIONS

Based on the research that has been done by the author, it can be concluded that the validity of the e-module based on Riau's local wisdom to enhance students' creative thinking skills through research obtained an average validity score of 80,78% for all aspects with valid criteria. The validity score includes aspects of content feasibility of 78,78% with a valid category, 81,34% presentation feasibility with a very valid category and linguistic feasibility of 82,22% with a very valid category. These results indicate that the developed e-module is suitable for use in learning biology on environmental pollution materials. Based on the student response questionnaire, the overall e-module feasibility category developed with environmental pollution material was 94%. The presentation feasibility aspect was 94,28%, language feasibility was 92%, and content feasibility was 93,34%, each with a very positive category. This means that students respond positively to the e-module that has been developed.

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