Indonesian Journal of Computer Science
ISSN 2302-4364 (*print*) dan 2549-7286 (*online*)
Jln. Khatib Sulaiman Dalam, No. 1, Padang, Indonesia, Telp. (0751) 7056199, 7058325
Website: ijcs.stmikindonesia.ac.id | E-mail: ijcs@stmikindonesia.ac.id

Practicality of E-Module Utilizing Meta-Creative Strategies

Rahmiati[1*], Mutia Putri[2], Indra Saputra[3], Murni Astuti[4], Siska Miga Dewi[5]
rahmiati@fpp.unp.ac.id. Mutiaputri1996@gmail.com, indrasaputra@fpp.unp.ac.id, murniastuti@fpp.unp.ac.id, siskamigadewi@gmail.com
Universitas Negeri Padang

Article

Submitted: 11 Nov 2023
Reviewed: 13 Dec 2023
Accepted : 30 Dec 2023

Keywords

Praticality, E-Module, meta-Creative Strategy, Research Learning, Makeup and Beauty

Abstract

This study aims to create an e-module for beauty and makeup research. It places its focus on evaluating the prativality of the e-module through the utilizization of the meta creative strategy approach. This ecaluation is carried out by assessing it with two distinct groups, which are lecturers and students. The outhor employs a systematic approach in evaluating the e-module with the meta creative strategy. The primery criteria for assessment include ease of media usage, time efficiency, interpretation ability and equvalency. The analysis results indicate a high level of practicality for the e-module with meta creative strategy used in this learning process. Lecture and students both rated it highly, with scores of 0,92 and 0.87 respectively. These score reflect the favorable reception from both groups of stakeholders. These findings lend support to the concept of meta creativity e-module developments and underscore the potential of educational technology in enhancing the learning experience.

A. Introduction

In the digital era of technological and informational advancements, education has a significant transformation [1]. This progress has also impacted the field of Beauty and Makeup Education. Traditional learning approaches, emphasizing printed materials and oral instructions, have now been replaced by more innovative and interactive methods [2]–[4]. One such method involves the utilization of electronic modules (e-modules). E-modules, or electronic modules, have emerged as tools capable of stimulating creativity [5] in the learning processes, particularly within the realm of Beauty and Makeup Education.

This article aims to conduct a comprehensive analysis of the practicality of e-modules in the context of Beauty and Makeup Education, with a specific focus on the application of meta-creative strategies. Within this framework, the author will examine how e-modules, when integrated with meta-creative strategies, can collaboratively contribute to the creation of a more effective, engaging, self-directed, and relevant learning experience. In the field of education, the utilization of meta-creative strategies is often employed to enhance students' creative thinking abilities [6].

Meta-creative strategies involve the integration of metacognitive strategies with the creative processes inherent in learning. Metacognition encompasses cognitive processes that involve planning, monitoring, and evaluating activities undertaken by students. The integration of meta-creative strategies serves to enhance students' creativity in crafting proposals. The creative process entails the swift and impactful utilization of students' cognitive and affective potentials through various stages [7]. The Simplex Basadur creative process theory [8][9] comprises three stages: problem formulation, problem solution formulation, and problem solution implementation. This framework facilitates the generation of well-structured, innovative ideas in formulating research proposals, encouraging students not only to be adept problem solvers but also to contemplate and reflect on their own thought processes [10].

This article provides an in-depth perspective on how learning through e-modules and meta-creative strategies can equip students with relevant and innovative skills necessary to excel as professionals in the industry [11]. Consequently, the article aims to offer profound insights into the implementation of e-modules in Beauty and Makeup Education, emphasizing the crucial role of meta-creative strategies in the learning process. The author will scrutinize aspects such as ease of use, time effectiveness, media interpretation, and media equivalence within e-modules.

B. Research Method

This research employs the research and development technique, utilizing the 4-D (four-D) development model consisting of four stages: the defining stage, design stage, development stage, and dissemination stage [12]. The research subjects comprise two Beauty and Makeup lecturers and 15 students majoring in Beauty and Makeup.

The defining stage involves a series of steps, including the analysis of student needs, task analysis, concept analysis, and learning objective analysis. The goal of

this stage is to determine and define the requirements that must be met in learning based on the Semester Learning Plan (RPS) within the independent curriculum.

The design stage aims to create learning material in the form of meta-creative-based e-modules, aligned with the content and learning objectives specified in the defining stage. In this stage, the e-modules are developed considering the structure and principles of meta-creative-based learning, and adjustments are made to the module components in accordance with module writing guidelines.

The development stage is conducted to assess the validity and user-friendliness of the product, aiming to produce a practical product through practicality testing. Practicality testing involves evaluation by experts, namely Beauty and Makeup lecturers and Beauty and Makeup students, assessing various aspects, including: 1) ease of media use, encompassing evaluation of clear writing, storage, and accessibility anywhere and anytime. 2) Time effectiveness, encompassing assessment of content delivery, presentation of material, and inclusion of learning materials and details. 3) Media interpretation, including assessment of ease of interpretation, suitability for repeated use as needed, self-learning sources, and absence of double meanings.

By conducting practicality testing, it is expected that the product can be comprehensively evaluated to ensure the quality of the e-module before its use in the learning process. The dissemination stage has not been implemented due to time constraints.

The data obtained from the disseminated practicality questionnaire are organized based on a Likert scale, as presented in Table 1.

Table 1. Likert Scale[13]

Likert Scale	Categories
5	Strongly Agree
4	Agree
3	Moderately Agree
2	Disagree
1	Strongly Disagree

C. Result and Discussion

1. Course of Research in Beauty and Makeup

The course on Research in Beauty and Makeup is a commonly offered subject in Beauty and Makeup Education programs. The objective of this course is to instruct students on the fundamental concepts and principles in beauty and makeup, as well as to introduce them to scientific research methods applicable in the beauty industry.

Typically, the Research in Beauty and Makeup course covers various topics related to makeup, beauty, and skincare. Topics may include makeup techniques, skincare products, beauty trends, ethics in the beauty industry, product analysis, and research methodologies. The aim of the course is to provide a comprehensive understanding of beauty and makeup from an academic perspective and to develop research skills essential for professionals in this industry [14].

Several components constitute the content of the Research in Beauty and Makeup course: 1) Fundamentals of makeup: Students will grasp basic concepts in

makeup, including techniques for applying makeup, color selection, and an understanding of facial structure. 2) Skincare and hair care: Discussion on skincare and hair care, encompassing products used in beauty treatments, as well as distinctions between various skin and hair types. 3) Trends and the beauty industry: Students will study the latest trends in makeup and beauty, as well as advancements in the industry, such as innovative beauty products and the latest beauty technologies. 4) Ethics and beauty standards: The importance of ethics in the practice of beauty and makeup, including the professional role in ensuring customer safety and satisfaction. 5) Research methodology: Students will comprehend scientific research methods, such as research design, data collection, data analysis, and the preparation of research reports. 6) Practical research: As the course allows students to engage in practical research in beauty and makeup, activities may include testing beauty products, evaluating makeup techniques, or analyzing market trends.

Benefits of the Research in Beauty and Makeup course [15]–[17]: 1) Enables students to become skilled professionals from a scientific standpoint. 2) Prepares students to be skilled and ethical professionals in the beauty and makeup industry. 3) Develops research skills necessary in the beauty industry. 4) Provides insights into the latest trends and developments in the beauty industry.

The final assessment goals for this course encompass presentations, project assignments, and evaluations based on research conducted by students [18]. Additionally, active participation in class discussions and practical research projects may also contribute to the assessment. The ultimate focus of the final project, as observed by the author in this article, is how students demonstrate creativity in writing a research proposal in Beauty and Makeup Research, considering the novelty of the chosen topics or their ability to integrate their findings with prior research.

2. Meta-Creative

Creative metacognition is a concept that pertains to an individual's capacity to think creatively about creativity itself. It involves the ability to recognize, manage, and optimize the creative process, as well as comprehend various aspects and dimensions of creativity. The relationship between creative metacognition and the subjects of cosmetology and beauty can manifest in several ways, and this is the detailed discussion of this relationship [15], [17], [19], [20][18], [21]–[24]:

a. Understanding the creative process in cosmetology and beauty: Creative metacognition assists students in cosmetology and beauty courses in understanding the creative process involved in cosmetology and beauty. This encompasses an understanding of how creative ideas in creating cosmetics and enhancing beauty are produced, executed, and evaluated. Creative metacognition aids students in reflecting on and analyzing their own creative processes in creating something innovative.
b. Motivating Creativity [25]: The ability to manage and motivate oneself in creating unique and innovative appearances is an integral part of creative metacognition. This implies that students will be able to identify their internal creative resources and use appropriate strategies to motivate their creativity in the context of cosmetology and beauty.

c. Facing creative challenges [26]: Creative metacognition equips students with the ability to face and overcome creative challenges in this course. This includes overcoming uncertainty in color selection, complex makeup techniques, or dealing with clients with diverse preferences. The ability to think creatively and find innovative solutions is a crucial aspect of this course, and creative metacognition helps students overcome these challenges [2].
d. Developing problem-solving skills [27]: Creativity often involves solving complex problems, such as adjusting makeup to match the client's skin type, identifying the right products, or creating an appearance in line with the latest trends. The ability to think creatively and use various approaches to problem-solving is an integral part of creative metacognition [28].
e. Encouraging innovation [29]: In the continually evolving beauty industry, innovation is key. Students who understand the concept of creative metacognition can encourage innovation in this cosmetology and beauty research course by creating the latest styles, products, or techniques that meet market needs and evolving trends.
f. Self-reflection and evaluation [30]: Creative metacognition involves the ability to reflect on creative work and evaluate the creative process itself [31]. Students can use this concept to examine their work, identify what has worked and what needs improvement, and develop their creative skills over time [32].

Thus, the relationship between creative metacognition and the cosmetology and beauty research course is crucial for understanding the creative process in the context of the beauty industry and developing the creative skills required. Creative metacognition helps students become creative professionals capable of facing various challenges in this industry in innovative ways.

3. Design Stage of E-Module

a. Defining Step (*Define*)

Analyze students' need

This analysis aids in determining the learning needs of students within the cosmetology and beauty research course by understanding what students require. E-modules can be structured to align with these needs, taking into account their levels of comprehension and interests. Analyzing the needs of instructors enables optimal module design, incorporating content relevant to these needs. The goal of analyzing student needs is to create a more effective learning experience that meets the expectations and requirements of students in mastering the subject.

Task Analysis

Task analysis helps clarify what is expected of students, ensuring a clear understanding of learning objectives. Tasks are designed to encourage students to apply the knowledge and skills learned in the module, fostering a deeper understanding. Tasks serve as crucial evaluation tools to measure the extent to which students have achieved learning objectives in cosmetology and beauty research.

Concept Analysis

Examining and ensuring students' understanding of key concepts in cosmetology and beauty research to ensure a solid foundation before progressing to more advanced topics.

Learning Objective Analysis

Clarifying learning objectives ensures that the specified learning objectives applied in the e-module are clear, measurable, and relevant in the context of learning. This provides students with a clear understanding of what they are expected to achieve.

b. Designing step (*Design*)

In the design phase, the presentation of the Beauty and Cosmetology Research E-Module based on creative metacognition is composed of several components, including the cover, preface, table of contents, module usage instructions for students and instructors, creative metacognition strategy guide, daily design, content, student activity sheets, instructional videos, and the author's biodata. The design of the e-module involves the use of various software tools, namely Microsoft Word, PDF, Canva, Google Forms, Google Drive, and Flip PDF Professional.

Microsoft Word is utilized to create the initial draft of the e-module components, which are subsequently edited using PDF. Canva is employed to enhance the module's visual elements, such as cover design, headers, footers, and the author's biodata. The Flip PDF Professional application is employed to transform the e-module's appearance into a digital format, enabling the incorporation of not only images and text but also videos, and allowing students to respond directly to module questions [3].

Google Forms is employed to include student activities, such as task completion, assignment submission, and reflections. The Google Forms link is embedded in the Flip PDF Professional application. Consequently, when students open the e-module and click on the activity link, they are directed to the provided Google Form. Google Forms offers several advantages, including: 1) ease of assignment submission - instructors can easily create assignment forms using Google Forms and distribute them to the entire class via a link or email, eliminating the need for physical task printing and distribution. 2) Google Forms allows instructors to create various question types, including short answer, multiple choice, and others, facilitating the design of assignments in alignment with lesson content and objectives. 3) time settings - instructors can set assignment submission deadlines, aiding in task management and reminding students of deadlines. 4) easy collection - students can submit their assignments online through Google Forms, reducing the risk of task loss.

Google Drive is beneficial in this e-module creation process as a repository for various bibliographic references within the e-module. Therefore, when readers or students view articles in the bibliography, provided links guide them to Google Drive containing the referenced articles.

The design layout of the e-module can be observed in the following image:

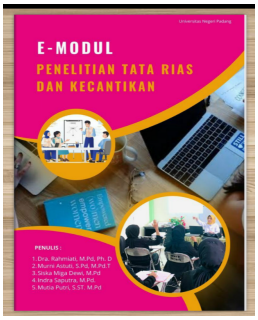

FIgure 1. Cover of E-Modul

Figure 2. Preface and Table of Contents

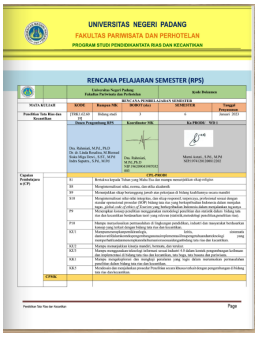

Figure 3. Semester Learning Plan

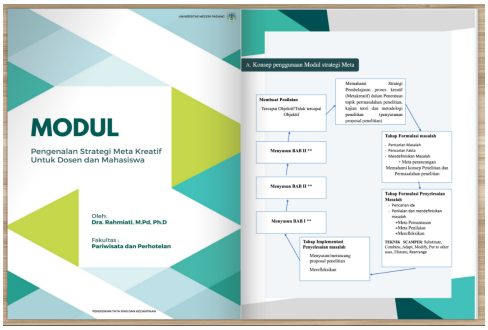

Figure 4. Introduction of Meta-Creatif Strategy

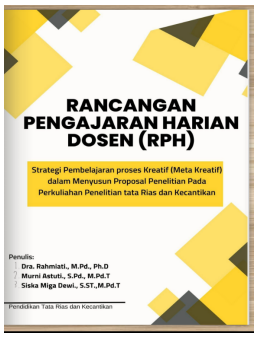

Figure 5. Daily Learning Plan

Figure 6. Learning Materials

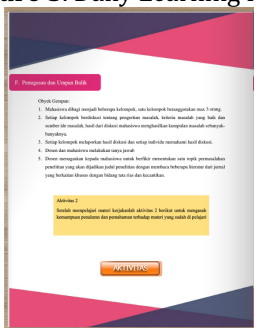

Figure 7. Student Activity Sheet

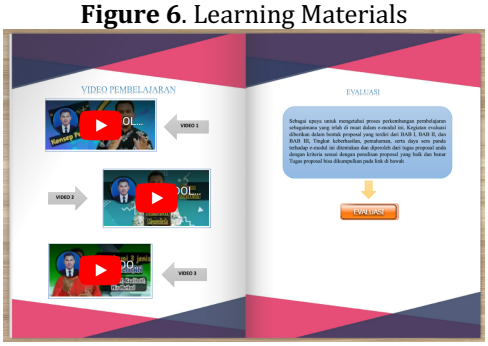

Figure 8. Learning Video and Evaluation Sheet

Figure 9. Author's Biodata

c. Developing Step (*Develop*)

A practicality test was conducted to assess the applicability of the developed product in the field. The practicality test involved two Cosmetology and Beauty Instructors and 15 Cosmetology and Beauty students. The practicality test was conducted offline. Instructors and students were requested to complete practicality questionnaires related to the ease of using the instructional media (e-module), the efficiency of time, and the interpretation of the instructional media (e-module). Additionally, students were asked to complete tasks provided within the e-module. The results of the practicality test for both instructors and students are presented in Tables 2 and 3, respectively.

Table 2. Results of Practicality Analysis Test Data from Lecturers

Aspect Evaluated	Result	Categories
User-Friendliness of Media	0,97	High
Time Effectiveness	0,92	High
Media Interpretation	0,9	High
Equivalence	0,9	High
Average	**0,92**	**High**

Table 3. Results of Practicality Analysis Test Data from Students

Aspect Evaluated	Result	Categories
User-Friendliness of Media	0,88	High
Time Effectiveness	0,84	High
Media Interpretation	0,89	High
Average	**0,87**	**High**

Based on the results of the practicality analysis of the developed test, it has been deemed practical with a high level of practicality for both the Faculty and Student practicality tests. The average scores for the Faculty and Student practicality tests are 0.92 and 0.87, respectively, indicating a high level of practicality.

The analysis of the evaluation results for the components of User-Friendliness of Media, time effectiveness, media interpretation, and equivalence yielded average scores of 0.92 and 0.87 by both faculty and students, indicating high practicality. The e-module serves as a form of implementing independent learning resources, thereby enhancing students' cognitive competence and fostering greater creativity [21], [34].

D. Conclusion

The assessment results by lecturers and students regarding the practicality of the e-module in the field of Makeup and Beauty Research indicate a high level of practicality. Faculty members provided a rating of 0.92, while students gave a rating of 0.87. This suggests that the e-module is positively received by both groups and is effective in supporting learning in the Makeup and Beauty Research course. Both parties, both faculty and students, have given high ratings to the quality and relevance of the e-module.

E. Ucapan Terima Kasih

The researcher extends appreciation and gratitude to all parties, with special acknowledgment to the Institute for Research and Community Service of Universitas Negeri Padang. This acknowledgment is conveyed due to the financial support that facilitated the research, as outlined in the contract number 1356/UN35.15/LT/2023.

F. Reference

[1] I. Juliana and R. Sulistyowati, "Pengembangan e-modul interaktif berbasis aplikasi book creator mata pelajaran produk kreatif dan kewirausahaan kelas XII BDP SMK PGRI 13 Surabaya," *J. Pendidik. Ekon.*, vol. 11, no. 3, pp. 328–334, 2023, doi: 10.26740/jupe.v11n3.p328-334.

[2] R. Rahmiati, M. Putri, E. Engkizar, and M. M. Mokhtar, "The effectiveness of flipbook-based e-modules in increasing student creativity in nail art subject in higher education," *J. Pendidik. Vokasi*, vol. 13, no. 2, pp. 158–168, 2023.

[3] E. Kusumawati, S. Utaminingsih, and M. Kanzunudin, "The Development E-Module Based on Contextual Approach Assisted by Next Flipbook Maker in Old Poetry Learning to Improve Literacy for Grade V Elementary School Students," *Asian J. Assess. Teach. Learn.*, vol. 12, no. 2, pp. 35–44, 2022.

[4] Anak Agung Meka Maharcika, Ni Ketut Suarni, and I Made Gunamantha, "Pengembangan Modul Elektronik (E-Modul) Berbasis Flipbook Maker Untuk Subtema Pekerjaan Di Sekitarku Kelas Iv Sd/Mi," *PENDASI J. Pendidik. Dasar Indones.*, vol. 5, no. 2, pp. 165–174, 2021, doi: 10.23887/jurnal_pendas.v5i2.240.

[5] D. Mustika and S. Q. Ain, "Peningkatan Kreativitas Mahasiswa Menggunakan Model Project Based Learning dalam Pembuatan Media IPA Berbentuk Pop Up Book," *J. Basicedu*, vol. 4, no. 4, pp. 1167–1175, 2020, doi: 10.31004/basicedu.v4i4.518.

[6] M. Zainudin, "Efektivitas Pembelajaran Berbasis Projek (Pbp) Terhadap Kreativitas Mahasiswa Pada Matakuliah Metodologi Penelitian," *JIPM (Jurnal Ilm. Pendidik. Mat.*, vol. 2, no. 2, p. 15, 2014, doi: 10.25273/jipm.v2i2.472.

[7] M. A. Runco, "Meta-Creativity: Being Creative About Creativity," *Creat. Res. J.*, vol. 27, no. 3, pp. 295–298, Jul. 2015, doi: 10.1080/10400419.2015.1065134.

[8] M. siddik Maulana, "PENGARUH MODEL PEMBELAJARAN SIMPLEX BASADUR TERHADAP KEMAMPUAN," no. 1110017000110, 2015.

[9] Hobri, I. K. Ummah, N. Yuliati, and Dafik, "The effect of jumping task based on creative problem solving on students' problem solving ability," *Int. J. Instr.*, vol. 13, no. 1, pp. 387–406, 2020, doi: 10.29333/iji.2020.13126a.

[10] S. Suherman and T. Vidákovich, "Assessment of mathematical creative thinking: A systematic review," *Think. Ski. Creat.*, vol. 44, no. February, 2022, doi: 10.1016/j.tsc.2022.101019.
[11] J. P. Oronce and D. A. O. Manalo, "Development and Validation of Flipbook in Earth and Life Science," *Int. Multidiscip. Res. J.*, vol. 3, no. 1, pp. 111–117, 2021, doi: 10.54476/iimrj273.
[12] R. Yunianti, S. D. Oktiana, L. Finisa, and N. I. Sabilla, "Problematika Pembelajaran Matematika pada Masa Pandemi Covid-19," *Indiktika J. Inov. Pendidik. Mat.*, vol. 4, no. 2, pp. 1–13, 2022, doi: 10.31851/indiktika.v4i2.7687.
[13] F. Fadhillah and A. Andromeda, "Validitas dan Praktikalitas E-Modul Berbasis Inkuiri Terbimbing Terintegrasi Laboratorium Virtual pada Materi Hidrolisis Garam kelas XI SMA/MA," *J. Eksakta Pendidik.*, vol. 4, no. 2, p. 179, 2020, doi: 10.24036/jep/vol4-iss2/516.
[14] D. I. Smk and N. Beringin, "PENGEMBANGAN MODUL KECANTIKAN DI SMK NEGERI 1," vol. 4, no. 2, pp. 19–26.
[15] R. Segundo-Marcos, A. M. Carrillo, V. L. Fernández, and M. T. Daza González, "Age-related changes in creative thinking during late childhood: The contribution of cooperative learning," *Think. Ski. Creat.*, vol. 49, no. May, 2023, doi: 10.1016/j.tsc.2023.101331.
[16] I. Lebuda and M. Benedek, "A systematic framework of creative metacognition," *Phys. Life Rev.*, vol. 46, pp. 161–181, 2023, doi: 10.1016/j.plrev.2023.07.002.
[17] R. Hews, G. Beligatamulla, and J. McNamara, "Creative confidence and thinking skills for lawyers: Making sense of design thinking pedagogy in legal education," *Think. Ski. Creat.*, vol. 49, no. April, p. 101352, 2023, doi: 10.1016/j.tsc.2023.101352.
[18] J. D. Putra and U. Rahmi, "Pengembangan E-Modul IPAS untuk Meningkatkan Kemandirian Belajar Siswa kelas IV SD," *J. Fam. Educ.*, vol. 3, no. 2, pp. 173–185, 2023.
[19] M. Van Hooijdonk, T. Mainhard, E. H. Kroesbergen, and J. Van Tartwijk, "Creative problem solving in primary school students," *Learn. Instr.*, vol. 88, no. September 2022, p. 101823, 2023, doi: 10.1016/j.learninstruc.2023.101823.
[20] P. Prasittichok and K. K. Klaykaew, "Meta-skills development needs assessment among undergraduate students," *Heliyon*, vol. 8, no. 1, p. e08787, 2022, doi: 10.1016/j.heliyon.2022.e08787.
[21] M. Putri, R. Rahmiati, M. Dewi, and D. Irfan, "Praktikalitas penggunaan e-modul dalam pembelajaran nail art," *JRTI (Jurnal Ris. Tindakan Indones.*, vol. 7, no. 1, p. 60, 2022, doi: 10.29210/30031508000.
[22] M. Hasanah, S. Supeno, and D. Wahyuni, "Pengembangan E-Modul Berbasis Flip Pdf Professional untuk Meningkatkan Keterampilan Berpikir Kreatif Siswa pada Pembelajaran IPA," *Tarb. Wa Ta'lim J. Penelit. Pendidik. dan Pembelajaran*, vol. 10, no. 1, pp. 44–58, 2023, doi: 10.21093/twt.v10i1.5424.
[23] M. V Siagian, M. Andriyani, P. Learning, and E. Pembelajaran, "PENGEMBANGAN E-MODUL INTERAKTIF BERBASIS PROBLEM-BASED LEARNING PADA," vol. 6, pp. 739–747, 2023.

[24] M. O. Armandari *et al.*, "PENGEMBANGAN E-MODUL PEMBELAJARAN," vol. 17, no. 2, pp. 218–228, 2023, doi: 10.30595/jkp.v17i2.19322.
[25] A. Cropley, "The creativity-facilitating teacher index: Early thinking, and some recent reflections," *Creat. Foster. Teach. Behav. Meas. Res.*, pp. 1–16, 2018, doi: 10.1142/9789813234161_0001.
[26] B. Barbot, T. I. Lubart, and M. Besançon, "'Peaks, Slumps, and Bumps': Individual Differences in the Development of Creativity in Children and Adolescents," *New Dir. Child Adolesc. Dev.*, vol. 2016, no. 151, pp. 33–45, 2016, doi: 10.1002/cad.20152.
[27] Y. Yusnita *et al.*, "The Effect of Professional Education and Training for Teachers (PLPG) in Improving Pedagogic Competence and Teacher Performance," *Tadris J. Kegur. dan Ilmu Tarb.*, vol. 3, no. 2, p. 123, 2018, doi: 10.24042/tadris.v3i2.2701.
[28] A. Craft, "The limits to creativity in education: Dilemmas for the educator," *Br. J. Educ. Stud.*, vol. 51, no. 2, pp. 113–127, 2003, doi: 10.1111/1467-8527.t01-1-00229.
[29] N. Diana, "Evaluasi Manajemen Mutu Internal di Fakultas Tarbiyah dan Keguruan dengan Metode Malcolm Baldrige Criteria for Education," *Tadris J. Kegur. dan Ilmu Tarb.*, vol. 2, no. 2, p. 111, 2017, doi: 10.24042/tadris.v2i2.2178.
[30] C. Benson and C. England, "Professor John Eggleston Memorial Lecture 2004 - Creativity: Caught or Taught?," *J. Des. Technol. Educ.*, vol. 9, no. 3, pp. 138–144, 2004.
[31] J. Baer, "Creativity Doesn't Develop in a Vacuum," *New Dir. Child Adolesc. Dev.*, vol. 2016, no. 151, pp. 9–20, 2016, doi: 10.1002/cad.20151.
[32] M. Blamires and A. Peterson, "Can creativity be assessed? Towards an evidence-informed framework for assessing and planning progress in creativity," *Cambridge J. Educ.*, vol. 44, no. 2, pp. 147–162, 2014, doi: 10.1080/0305764X.2013.860081.
[33] Anisa Taqwina, Rahmiati, Linda Rosalina, and Refdinal, "Flipbook Maker Based E-Module in Hand, Foot and Nail Care Courses," *J. Lesson Learn. Stud.*, vol. 5, no. 3, pp. 385–392, 2023, doi: 10.23887/jlls.v5i3.57188.
[34] R. Rahmiati, I. Saputra, and R. Oktarina, "Interactive electronic module: Is it beneficial for learning?," J. Lesson Learn. Stud., vol. 6, no. 2, pp. 209–218, 2023, doi: 10.23887/jlls.v6i2.60477.