



Unnes.J.Biol.Educ. 11 (3) (2022)



Journal of Biology Education

<http://journal.unnes.ac.id/siu/index.php/uibe>

Development of Teaching Material Supplement of Narcotics, Psychotropics, and Addictives Substances (NAPZA) Based on Research for High School Students.

Amalia Ulfa , Lisdiana^{1✉}

¹Biology Department, FMIPA, Universitas Negeri Semarang, Indonesia

Article Info

Article History:

Received : March 2022

Accepted : March 2022

Published : December 2022

Keywords:

Feasibility, Teaching Material Supplement, NAPZA

Abstract

This research was aimed to analyze the validity, feasibility, and describe the characteristics of narcotics, psychotropics, and addictive substances (NAPZA) teaching material supplements. This research was conducted by using research and developmental methods (R&D) that refers to the steps (1) potential and problems; (2) data collection; (3) product design; (4) design validation; (5) design revision; (6) product trial; (7) product revision; (8) final product. The subjects in this research were students and biology teachers. Parameters for the feasibility of teaching material supplements are seen from material validation, media validation, teacher responses, and student responses. The results showed that the characteristics of NAPZA teaching material supplements were arranged from simple to complex containing the latest research in each sub-chapter. The results of the material validity analysis obtained a score of 89% with very valid criteria, media validity showed a score of 92% with very valid criteria, the teacher's responses showed 91.6% results with very feasible criteria, student responses showed 89% results with very feasible criteria. Conclusion from this research is that teaching material supplements of NAPZA based on research have material characteristics from simple to complex, valid, and suitable for use as learning resources on the NAPZA materials.

© 2022 Universitas Negeri Semarang

✉Address Correspondence:

D6 Building 1st Floor Jl Raya Sekaran Gunungpati Semarang

E-mail: lisdiana@mail.unnes.ac.id

INTRODUCTION

The learning process is defined as an activity carried out by two parties, including the teacher as a facilitator and students as the subject of learning. The learning process also involves various components to convey messages in the form of knowledge (cognitive), skills (psychomotor), and attitude values (affective) so that learning objectives can be achieved correctly on the target. The learning process is referred to as a system because it contains components that are interconnected and sustainable. One of the important components in learning is learning resources. Learning resources are basic necessary in the form of sources of information, learning tools, media, and necessary in the teaching and learning process (Suryani et al., 2018).

Learning resources have an important role in teaching and learning activities in order to achieve the learning objectives expected by teachers and students. According to Fentim (2014) that teachers appreciate the importance of the existence of teaching materials in teaching and learning activities in the world of education. The existence of learning resource facilities can help students understand a concept in the material being taught so that students can understand the material well. Concept understanding is needed in biology learning.

Learning resources are often interpreted as the school main book. With the era of disruption which is also known as the industrial revolution 4.0, learning resources are not only printed media, but digitalization or what we often use is e-books. Learning resources or learning resources consist of various types and can help students and teachers in maximizing the teaching and learning process. Apart from books, worksheets, or articles, other learning resources are also useful in the learning process and for academic purposes (Komalasari, 2019).

Research conducted by Idmal (2019) states that the use of less than optimal teaching materials is one of the factors causing the low quality of the learning process in the schools. The rational use of teaching materials should provide opportunities for students to learn even without the guidance of the teacher. To maximize the learning process, teachers and students must use various learning resources and learning media such as print media, internet, and other sources.

Based on the results of observations and interviews with Biology teachers at SMA Negeri 1 Demak, it shows that SMA Negeri 1 Demak has complete facilities regarding learning media including teaching materials used in learning. As observed during observations and interviews with teachers, many students like books that are interesting, unique, and contain up-to-date information. The books currently used by students are only grade 11 high school biology textbooks and the Individual Learning Activity Unit (UKBM) sheet from the Subject Teacher Conference (MGMP)

The problem of NAPZA is a complex problem. NAPZA use is a problem that cannot be left unchecked among adults, adolescents, and children. NAPZA trafficking during the Covid-19 pandemic is getting more serious and more widespread. NAPZA use during a pandemic like today will be more dangerous than under normal circumstances (Natalia and Humaedi, 2020). Based on data on criminal cases of drug abuse in Demak Regency in 2020 by the Demak Police Narcotics Investigation Unit, it shows that there were 27 cases during the one year period. Among them, there were 30 suspects, namely 24 men, 1 woman, and 5 children with the confiscated evidence, namely 6.21 grams of shabu, 18,329 dangerous drugs, 124 ecstasy pills, and 145 bottles of alcohol. This can be a source of developing teaching materials of NAPZA based on research by integrating relevant research results

The development of teaching material supplement based on the results of research can contribute to meaningful learning because the presentation of the material is contextual. In addition, teaching material supplements developed based on research results have a more in-depth, more interesting presentation of material because the presentation of material is not only from theory or concepts, but is based on scientifically proven facts (Wahyuni et al., 2018).

Teaching material supplement should be made more applicable so that they can increase students' reading interest because this is not only a concept they learn, but is also useful in life. Teaching material supplements must follow current developments and the delivery of material is explained clearly, contextually, and can highlight problems that arise in the community. (Rizki et al., 2016).

RESEARCH METHOD

This research is a *Research and Development research* and uses a development model according to Sugiyono (2015) which refers to the steps (1) potential and problems; (2) data collection; (3) product design; (4) design validation; (5) design revision; (6) product trial; (7) product revision; (8) final product. The parameter of the feasibility of teaching material supplements is seen from the validation and feasibility of the product. The validations carried out are material validation, and media validation. Meanwhile, the feasibility of the product is based on the teacher's response, and the student's response. This research is divided into two stages. The first stage in this research is to collect research information. There are two studies used, including research a) The Effects of E-cigarette Smoke and Shisha on the Number of Alveolar Macrophages in Rats by Tri Arifian Nugroho with the research site at the State University of Semarang in 2020; b) Relationship of Inhalation of Rubber Adhesive Glue to Histopathological Description of the White Rat Cerebral Cortex by Ghary Yope Sihombing with the research site at Nusa Cendana University. Next is the product design stage. After that the product is validated by material experts and media experts. The next stage was a small-scale trial carried out to 10 students of class XI MIPA 3 SMA N 1 Demak. After a small-scale test, then a feasibility test for teaching material supplements was carried out using a teacher and student response questionnaire.

RESULTS AND DISCUSSION

Teaching material supplements based on research were developed in January – May 2021. The research carried out modifies the stages of Sugiyono's research, and the researcher only limits it to eight stages. The initial stage in the process of developing teaching material supplements is data and information collection. Supplements for NAPZA teaching materials were developed based on needs analysis and data results during observations and interviews with teachers and students. Teaching material supplements are also compiled from various research results on NAPZAs, scientific publication articles, and literature books with trusted sources.

After going through the manufacture of the product, the supplement is then validated by material experts and media experts. The assessment of the validity of the drug teaching material supplements was obtained from the results of a validation questionnaire by the validator. The material expert on the teaching material supplement is a biology lecturer at the State University of Semarang, while the media expert is a lecturer at the DKV FBS at the State University of Semarang. Test the validity of teaching materials supplements using a questionnaire technique and assessment using a scale of one to four. Furthermore, the results of the assessment scores are analyzed and converted into percent form. Supplements of teaching materials are said to be valid if the percentage of validity results by media experts and material experts state the validity of the media and the validity of the material each of 51%, which indicates a description of the criteria valid to very valid. The validity component of the teaching material supplement is adjusted to the provisions of the teaching material component according to the 2014 National Standards Agency (BSNP), which consists of the appropriateness of the content/material, language, contextuality, presentation, and graphics. The components of material validity include the feasibility of content/material, language, and contextuality, while the media validity components include presentation and graphics. The data from material validation by material experts is presented in table 4.1 below :

Table 4.1 Result of Material Validity by Material Experts

Assessment Aspect	Score	Maks Score	Percentage (%)	Criteria
Material Feasibility	59	64	92%	Very Valid
Linguistic	24	28	85.7%	Very Valid
Contextuality	6	8	75%	Valid
Total	89	100	89%	Very Valid

Several aspects were assessed on the validity of the supplementary media for NAPZA teaching materials, namely the feasibility of the material, language, and contextuality. The results of the material validity assessment by material experts obtained a percentage of 89% so that the NAPZA teaching material

supplements could be included in the very valid category.

Based on table 4.1, the validity of the drug teaching material supplement material has a percentage of 89% with very valid criteria, so that the drug teaching material supplement can be used for research. This happens because the assessment aspects of the validity questionnaire are met in accordance with the validated product. The content of the material contained in the supplement product is obtained from the analysis of potential problems that occur in the current learning process through the results of interviews with students and biology teachers (Appendix 2 and 3) and is adjusted to the 2013 curriculum based on Core Competencies (KI) and Basic Competencies (KD).). When developing a teaching material, the content or content of the material must be adjusted to the analysis of student needs and in accordance with the current curriculum (Magdalena, 2020).

In the linguistic aspect, the percentage is 85.7%. Supplements of good teaching materials must be presented in communicative language and have a coherent line of thought, so that students can easily understand the message of the material conveyed in the supplementary teaching materials. While on the aspect of contextuality, the percentage is 75%. According to research by Aydin and Aytakin (2018), the material arranged in textbooks must be appropriate, contextual and reflect real life. According to the research of Purwanto and Rizki (2015) that materials related to various kinds of problems in school can make learning more meaningful and motivate students to relate their knowledge to everyday life.

While on media validity, the assessment is obtained from validation by media experts who are competent in their fields. The results of media validation can be seen in table 4.2.

Table 4.2 Result of Media Validity by Media Experts

Assessment Aspect	Score	Maks Score	Percentage (%)	Criteria
Presentation Technique	12	12	100%	Very Valid
Material Presentation Support	23	24	96%	Very Valid
Size of Teaching Material	8	8	100%	Very Valid
Cover of Teaching Material	21	28	75%	Valid
Content Design	54	56	96%	Very Valid
TOTAL	118	128	92%	Sangat Valid

Several aspects were assessed on the validity of the supplemental media for NAPZA teaching materials, namely presentation technique, supporting material presentation, supplement size, supplement cover, and also content design. The results of the assessment of the validity of the material by media experts obtained a percentage of 92% so that the supplementary NAPZA teaching materials could be included in the very valid category.

Based on the results of validation by media experts, the technical aspect of media presentation obtained a percentage of 100%. In the technical aspect of presenting this media, it pays attention to several indicators, namely the level of consistency and systematic presentation. Based on research of Suswina (2016), it shows that in the aspect of media presentation, it must have relevance, continuity between materials, be systematic, and consistent. The consistency of teaching materials makes it easier for students to assimilate and understand the material presented. In addition, suggestions for improvement are also given by media experts so that they can improve supplement products to be even better and ready to be used by students.

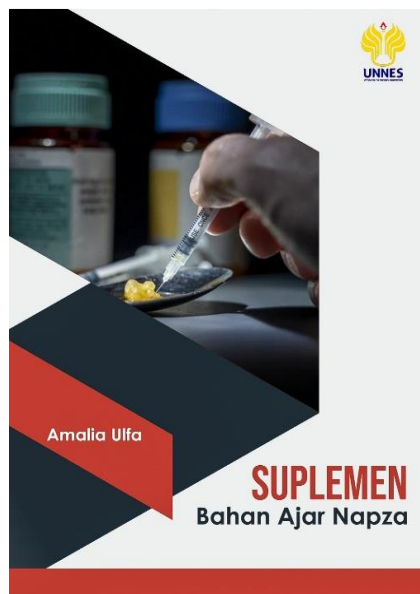
In the aspect of supporting material presentation, the percentage is 96%. The indicators contained in the supporting aspects of material presentation are the accuracy of illustrations, presentation of media components (text, tables, images), accuracy of writing, presentation of preface, glossary, and reference lists. Illustrations, and components such as text, tables, and images presented in teaching material supplements must be appropriate and appropriate. In addition, the use of attractive images is an important component so that the supplement of teaching materials is not monotonous and does not cause students to feel bored.

The results on the aspect of the size of the supplement obtained a percentage of 100%. In the aspect of the size of the supplement, the indicators of the suitability of the size of the supplement are based on the ISO standard that has been set, and the suitability of the size with the material of the supplement. In the NAPZA supplements that were developed, the size of the supplement used was A4 and was in accordance with the established standards.

In the aspect of supplement cover, the percentage is 75%. The cover aspect of this supplement pays attention to several indicators, namely the accuracy of the cover illustration, the suitability of the layout, the suitability and clarity of the cover components (colors, letters, and illustration objects). According to

Magdalena et al (2020), most students are generally more interested in the cover or cover of a book. Therefore, it is recommended to include attractive images, colors, and fonts on the cover. Meanwhile, in the content design aspect, the percentage is 96%. Aspects of content design in teaching material supplements pay attention to indicators of layout, illustration creativity, compatibility between content components (variation of letters, spaces, images, and margins). Teaching materials are prepared by taking into account the consistency in the use of fonts, spacing, and layout in the teaching materials. The design of the book content is also closely related to the typeface or typography. Typography is a technique of creating and arranging letters involved in compiling visual publications, both printed and non-printed (Masrur et al., 2017).

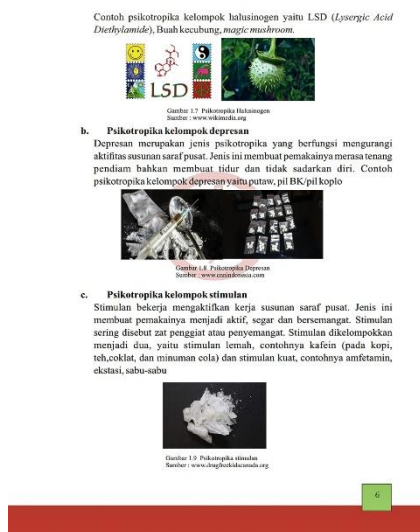
In the validation of the material obtained several suggestions for improvement by the material validator. Improvements are given so that the supplement of teaching materials is better. The validation results from media experts provide several suggestions including changes to the cover, layout design, and typeface. The changes to the supplement cover and layout are shown in the following picture:



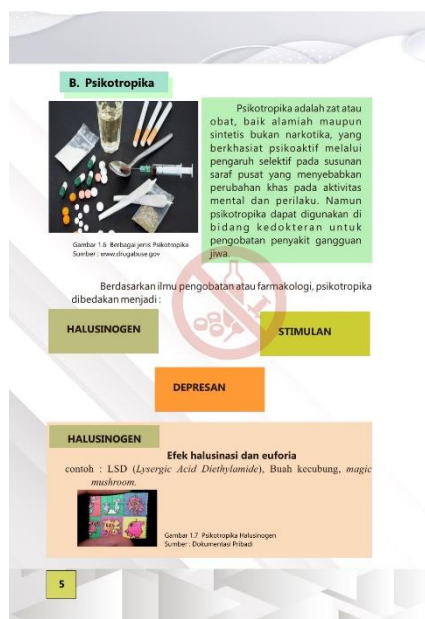
Cover before revision



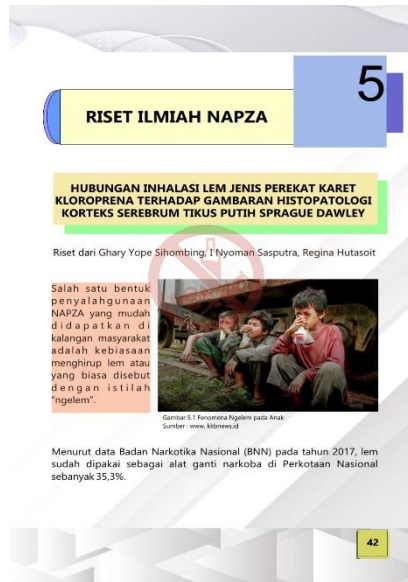
Cover after revision



Layout design before revision



Layout design after revision



Sub- chapter Research Materials on Drug Teaching Material Supplements

The cover display is designed as attractive as possible so that students can be interested in the supplement book that was developed. The size used in the supplement of teaching materials is A4 and is in accordance with the ISO standards that have been set. Variations in the type and size of the font used are Ebrima and the font size is 14 pt. The color variation used in the fill design is dominated by red. The choice of contrasting colors in the display design can attract students' attention and stimulate student curiosity.

The development of teaching material supplements of NAPZA is designed with an attractive visual appearance, using appropriate color combinations so that the reader does not get bored and makes students interested in the material presented. In addition, each sub-material is equipped with the results of the latest research and research on NAPZAs, so that it encourages and makes students more interested in reading and studying the developed NAPZA teaching material supplements.

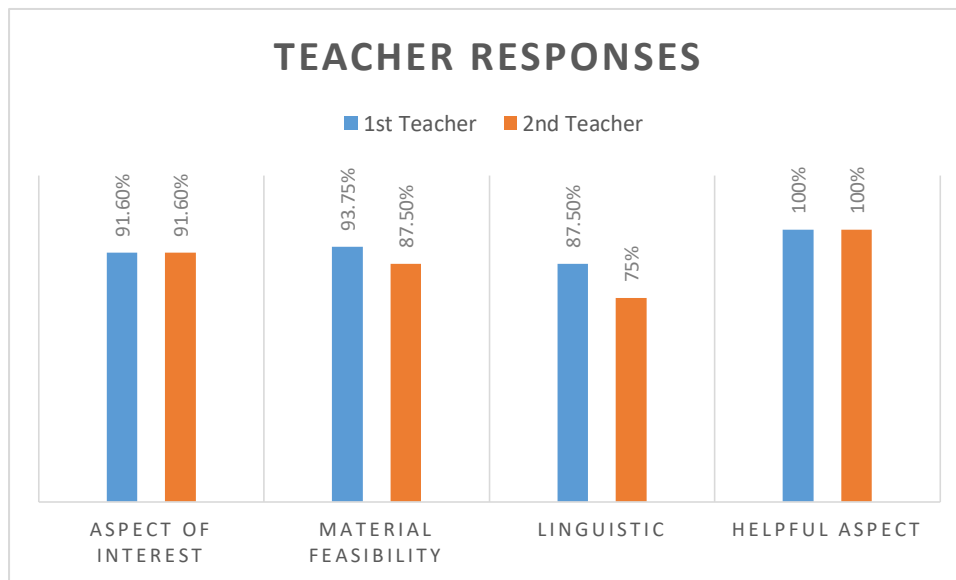
The research material is packaged in an attractive manner so that students have an interest in reading the research. The selected research included research on the effect of chloropene glue on the cerebral histopathology of Wiskar rats and research on the effect of tobacco cigarettes, e-cigarettes/vape, and shisha on the histopathology of alveolar macrophages in mice.

Supplements of teaching materials that have been validated and improved, then the product feasibility test is carried out. In addition to the validity by material experts and media experts, the quality of supplementary drug teaching materials is also reviewed from student responses and teacher responses. The feasibility of supplementing drug teaching materials was obtained based on the teacher's questionnaire, as well as student responses. At this stage, students and teachers fill out the response questionnaires that have been provided. The following is a table of teacher responses and student responses presented in table 3

Table 3. Results of the recapitulation of student and teacher responses

Description	Score	Percentage (%)	Criteria
Teacher Responses	12	100%	Very Valid
Students Responses	23	96%	Very Valid

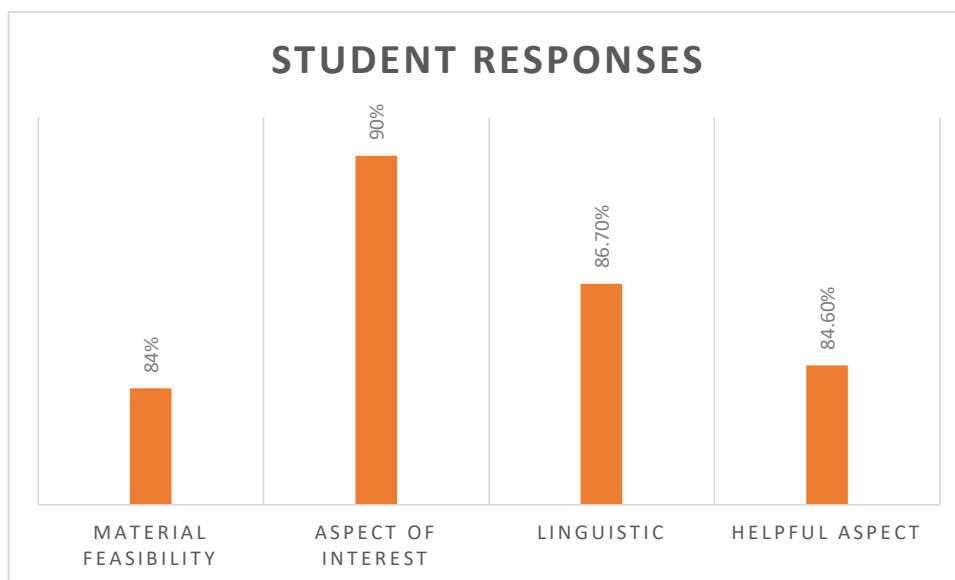
The following are the results of the teacher's responses based on the assessed indicators:



The aspects that are assessed in the feasibility assessment based on the teacher's responses are interest, material, language, and also assistance. In the interest aspect, the percentage of teacher 1 and teacher 2 obtained 91.6% and gave a positive response that the supplement of drug teaching materials is very feasible to use. This shows that the drug teaching material supplement has the characteristics of an attractive overall appearance, can encourage and motivate students in learning drug material and make students feel not bored when reading the teaching material supplement.

In the material aspect, the percentage obtained is 93.75 % by teacher 1 and 87.5% by teacher 2. In the material aspect, it gets good responses and thinks that the supplement of teaching materials is very feasible to use. According to Dewi and Wahyuningsih (2018) the feasibility of the content is said to be valid and feasible if the materials presented are in accordance with the information needed by students in increasing knowledge. In addition, the teaching material supplement contains several researches including research on the effect of inhalant glue on the histopathology of the cerebral and research on the effect of e-cigarettes and shisha on the histopathology of alveolar macrophages. In the language aspect, the percentage is 87.5 % from teacher 1 , and 75% from teacher 2. This shows that in terms of language, supplementary teaching materials are feasible to use. The language presented in the supplementary teaching materials is very simple and easy for readers to understand. The language used in the supplement of raw drug teaching materials is communicative, and in accordance with the rules of the Indonesian language, and does not use a lot of letter variations. While on the aspect of assistance, the percentage of teacher 1 and teacher 2 obtained a 100% percentage. The teacher gave a positive response that the supplement of drug teaching materials agreed when used in learning and became an additional book or support for learning, especially on drug material.

Based on the results of the recapitulation of student responses, the percentage is 89% and is categorized as very suitable for use by students. As for the assessment of each indicator, it is in the graphic table below :



The aspects that are assessed in the feasibility assessment based on the teacher's responses are interest, material, language, and also assistance. In the interest aspect, the percentage of teacher 1 and teacher 2 obtained 91.6% and gave a positive response that the supplement of drug teaching materials is very feasible to use. This shows that the drug teaching material supplement has the characteristics of an attractive overall appearance, can encourage and motivate students in learning drug material and make students feel not bored when reading the teaching material supplement.

In the material aspect, the percentage obtained is 93.75 % by teacher 1 and 87.5% by teacher 2. In the material aspect, it gets good responses and thinks that the supplement of teaching materials is very feasible to use. According to Dewi and Wahyuningsih (2018) the feasibility of the content is said to be valid and feasible if the materials presented are in accordance with the information needed by students in increasing knowledge. In addition, the teaching material supplement contains several researches including research on the effect of inhalant glue on the histopathology of the cerebral and research on the effect of e-cigarettes and shisha on the histopathology of alveolar macrophages. In the language aspect, the percentage is 87.5 % from teacher 1 , and 75% from teacher 2. This shows that in terms of language, supplementary teaching materials are feasible to use. The language presented in the supplementary teaching materials is very simple and easy for readers to understand. The language used in the supplement of raw drug teaching materials is communicative, and in accordance with the rules of the Indonesian language, and does not use a lot of letter variations. While on the aspect of assistance, the percentage of teacher 1 and teacher 2 obtained a 100% percentage. The teacher gave a positive response that the supplement of drug teaching materials agreed when used in learning and became an additional book or support for learning, especially on drug material.

Based on the results of the recapitulation of student responses, the percentage is 89% and is categorized as very suitable for use by students. As for the assessment of each indicator, it is in the graphic table below :

CONCLUSION

Based on the results of data analysis and discussion, it can be concluded that research-based NAPZA teaching materials supplementation is appropriate to be used as a learning resource on NAPZA materials. Suggestions for further research, hopefully further research can be developed up to the product usage test stage and it is hoped that further research can develop teaching materials with illustrations that are more attractive to students.

REFERENCES

- Arsyad, A. 2015. *Media Pembelajaran Edisi Revisi*. Raja Grafindo Persada, Jakarta.
- Aydin, A., Aytekin, C. 2018. Teaching Materials Development and Meeting the Needs of the Subject: A Sample Application. *International Education Studies*. Vol 11(8): 27-38

- Azwar, S., 2013. *Sikap Manusia : Teori dan Pengukurannya*. Yogyakarta: Pustaka Pelajar
- Darmayanti, V., Hariyadi, S., Hariani, S.A. 2014. Pengembangan Buku Siswa Berbasis Inkuiri pada Pokok Bahasan Pencemaran dan Kerusakan Lingkungan untuk Meningkatkan Hasil Belajar Siswa Kelas VII SMP NEGERI 1 Maesan Bondowoso. *Jurnal Pancaran*. Vol 3(3): 93-102
- Dewi, E.R., Wahyuningsih, S. 2018. Efektivitas Booklet dalam Meningkatkan Pengetahuan pada Dokter Kecil tentang Keamanan Pangan Sekolah. *Jurnal Kesehatan Masyarakat*. Vol 6(2): 73-83
- Fadilah, R.E., Amin, M., Lestari, U. 2016. Pengembangan Buku Ajar Evolusi Berbasis Penelitian untuk Mahasiswa S1 Pendidikan Biologi Universitas Jember. *Jurnal Pendidikan : Teori, Penelitian, dan Pengembangan*. Vol 1(6): 1104-1109
- Fentim, D.B. 2014. an Investigation on Teaching and Learning Resources/ Materials Used in Financial Accounting Lessons in SHS in Sunyani Municipality. *International Journal of Research in Social Sciences*. Vol. 4(2): 84-92
- Idmal, N.S. 2019. Hubungan Pemanfaatan Sumber Belajar dengan Hasil Belajar IPA Siswa SMP Negeri 4 Barebbo Kabupaten Bone. *Jurnal Biotek*. Vol 7(2): 148-156
- Komalasari, E. 2019. Peran Guru Dalam Media dan Sumber Belajar di Era Disrupsi. *Prosiding Seminar Nasional Pendidikan FKIP*. Vol 2(1): 439-448
- Magdalena, I., Sundari, T., Nurkamilah, S., Nasrullah, Amalia, D.A., 2020. Analisis Bahan Ajar. *Nusantara : Jurnal Pendidikan dan Ilmu Sosial*. Vol 2(2): 311-32.
- Masrur, H., Corebima, A.D., Ghofur, A. 2017. Pengembangan Buku Suplemen Mutasi Gen Pada Matakuliah Genetika. *Jurnal Pendidikan*. Vol 2(9): 1160-1167
- Natalia, S., Humaedi, S. 2020. Bahaya Peredaran NAPZA pada Masa Pandemi COVID-19 di Indonesia. *Prosiding Penelitian & Pengabdian kepada Masyarakat*. Vol 7(2): 387-392
- Rizki, M., Irwandi, D., Bahriah, E.S. 2016. Pengembangan Buku Suplemen Kimia Berbasis Sains Teknologi Masyarakat pada Materi Kimia Polimer. *Jurnal Tadris Kimiya*. Vol 1(2): 47-57
- Suryani, E., Wahyuni, A., Mataram, U. 2018. Pengaruh Sumber Belajar Terhadap Minat Belajar Bahasa Arab Siswa Kelas VII MTs Negeri 2 Sumbawa Kabupaten Sumbawa Besar. *el-Tsaqafah*. Vol XVII(1): 1-15
- Suswina, M., 2016. Hasil Validitas Pengembangan Bahan Ajar Bergambar disertai Peta Konsep untuk Pembelajaran Biologi SMA Semester 1 Kelas XI. *Jurnal Ta'dib*. Vol 14(1): 44-51
- Ulandari, T., Syamsurizal, S. 2021. Booklet Suplemen Bahan Ajar pada Materi Protista untuk Kelas X SMA/MA. *Jurnal Penelitian dan Pengembangan Pendidikan*. Vol 5(2): 301-307
- Wahyuni, H., Kiswardianta, R.B., Yuhanna, W.L. 2018. Pengembangan Modul Berbasis Riset pada Mata Kuliah Anatomi Tumbuhan. *Prosiding Seminar Nasional SIMBIOSIS III*. FKIP Universitas PGRI Madiun