

Development Of Worksheets Based SSCSS (Search, Solve, Create And Share) To Improve Critical Thinking Skills For Class X Students In Biology Subjects

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Abstract – Today's learning is mostly teacher-centered and makes the teacher the center of providing knowledge to students, and also the learning strategies used are not appropriate. Students think that ecology and environment material is considered to be difficult to understand and the lack of availability of teaching materials is one of the obstacles that students find difficult in learning ecology and environment materials. This research aim to produce a worksheets based search, solve, create and share learning model through research and development research using the Plomp model with 3 stages, namely the preliminary phase, development or prototyping phase, and the assessment phase. This research was conducted at SMA Negeri 3 Padangsidempuan. The assessment were carried out through expert validation, validity and practicality by students and biology teachers. The research instrument used are interview sheet and a questionnaires. The results of the material expert team's assessment showed an average percentage of 88.12% (very valid), design experts 82.33 (very valid), language design experts 100% (very valid), also teacher respondents were 96.67% (very practical). Student respondents were 91.68% (very good), and the t test value ($t_{count} = 3.175$ and $t_{table} = 2.042$) so it can be concluded that the worksheets based search, solve, create and share learning model on ecosystems and environmental developed was valid, practical, and effectively used in the biology learning process. The used of the worksheets based SSCSS can improve students of learning outcomes and help them to develop their critical thinking skills.

Keywords – Worksheets Development, Search, Solve, Create And Share Approach, Critical Thinking Skill.

I. INTRODUCTION

Education is used to believe as a potent medium in building of human child's intelligence and personality to be better. In facing the evolving in the era of technological and communication sophistication, the improvement of intelligent, skilled, critical, independent, and noble human resources continues to be pursued through the educational process. A critical thinking skill of student is important to solve various kinds of problems in the educational process, making critical thinking skills one of the teacher's achievements.

In the 21st century, student's critical thinking skills in Indonesia are still relatively low. The thinking skills of Indonesian students are still relatively low in the fields of science and technology, based on the results of TIMSS (Trends International Mathematics and Science Study) and PISA (Programme for International Student Assessment) result. TIMSS in 2015, scores of Indonesian students was puts it at the bottom. Math score of 397, putting Indonesia at the number 45 out of 50 countries. In the field of science, with a score of 397, Indonesia ranks 45th out of 48 countries [1]. From the data obtained from students of SMAN 3 Padangsidempuan during observation showed that 40.4% of students' critical thinking skills are still low, 39.6% of moderate students' critical thinking and 20% critical thinking.

Learning can be interpreted as a process of increasing knowledge and insight through a series of activities that are carried out consciously by a person and cause changes for itself, in order to cause a positive transformation process occurs and at the end of

the stage they will get new skills and knowledge so that in supporting these activities, especially in biology learning, there are several factors, one of which is the existence of teaching materials. In addition, Indriana said that teaching materials act as the main reference that can direct appropriate activities so that learning will be more directed and learning objectives can be achieved optimally [2]. Through curriculum 2013 which demands learning to direct constructivist learning, students are required to construct or build their own knowledges. However, the reality that is often found today is that learning is only teacher-centered and makes the teacher the center of providing knowledge to students, also the used of strategy is not appropriate, this causes less student participation so that it has an impact on the learning outcomes obtained.

Teacher can initiating various efforts to solve these problems which is by utilizing teaching materials that tailored to of each student's characteristics that can supports the learning process, one of which is the used of student worksheets. Based on Pizzini development study said that learning models that can be integrated with student worksheets combined with the Search, Solve, Create, and Share (SSCSS) learning model [3]. The student worksheets is one form of teaching material, which serves as a support for the main teaching materials used by the teacher. The development of this student worksheets was developed based on the SSCSS learning model, because the SSCSS learning model is one of the learning models that directs students to construct knowledge, that's meaning can be applied with a constructivist approach or with problem solving learning methods. The same study was also conducted by Hakim, Marianti, and Widiyaningrum study staetd that learning using the SSCSS model, teachers and students work together to find solutions to a problem, so that learning will be more meaningful for students [4].

Based on the observation and preliminary study result conducted by 60 students, found that 85.7% of students think that the material on Ecology and the Environment only considered including material that is difficult to understand. The lack of availability of teaching materials is one of the obstacles for students to find it difficult to learn Ecology and Environment materials. As many as 71,4% of students often thought that they need other teaching materials that support understanding of the material also, 92.9% of students thought that they agreed to carry out the development of worksheets on Ecology and Environment materials. 71.4% of students learn the material on Ecology and the Environment by just seeing and observing.

Based on the observation result conducted by 4 biology teachers also stated that the lack of availability of teaching materials is one of the obstacles to achieving learning objectives. The teachers agrees that the Ecology and Environment materials are still difficult to reach for students. Morevore the teaching materials used also does not contain in detail the material being taught. Independent learning has not been carried out fully and the management of skills in critical thinking has not been implemented properly. The teachers agrees to develop worksheets based SSCS to improve students' critical thinking skills, based on the results of conducted interviews by biology teachers at SMAN 3 Padangsidimpuan said that the worksheets based SSCS to improve students' critical thinking skills had never been used in the school.

Teachers are encouraged to start introducing and teaching worksheets that meet various strategies with critical thinking aspects, including giving assignments in a way that stimulates high-level thinking and is contextual in nature, so that students' critical thinking skills can improve properly [5]. The development of worksheets based on Search, Solve, Create and Share (SSCSS) learning model which is suitable to be used as a learning resource for students in learning activities is expected to improve students' ability to think critically. Based on these data, researchers feel the need to develop a worksheets based on Search, Solve, Create and Share (SSCSS) to improve critical thinking skills of class X students in biology subjects.

II. METHODS

This research is part of research development (R&D). Research and development methods are research methods used to produce certain products and test their effectiveness. The SSCSS-based worksheets development method used in this study refers to the development model proposed by Tjeerd Plomp which consisted of preliminary research phase, development or prototyping phase, and assessment phase. This research was conducted at SMAN 3 Padangsidimpuan implemented in two places. The development or design of the worksheets based SSCS was carried out at Padang State University, and tested on class X students at SMA Negeri 3 Padangsidimpuan whose will be starting in 2022.

The development research starting with preliminary research phase by carried out some activities and to figure out the problem and design of the worksheets based SSCS. The preliminary phase were carried out problem analysis or needs analysis, curriculum analysis, concept analysis and students analysis. This phase aim to figure out the problems that occur in learning biology, characteristics of the worksheets that are suitable for student, identify concepts in order to obtain the data needed in the

development of learning devices. The research instrument used at this stage are interview sheet and questionnaires by teacher and students.

Secondly, the researcher starting to development or design the product. The activities carried out at this phase are product development in the form of an worksheets based SSCS on ecology and environment materials. This phase were conducted in three development stages, begins with self-evaluation using a checklist instrument by checking the components of an worksheets based SSCS that are considered incomplete/inappropriate, this activities are called development phase of prototype I. Thirdly, the result of prototype I that has been revised is submitted to the expert by lecturer from Padang State University through consultation using a validation questionnaire from the aspects of content, presentation design, readability, and components. This activities is called development of prototype II.

$$V = \frac{TSEV}{S - max} \times 100\%$$

Description :

V = Validity

TSEV = Total Validator Empirical Score

S-max = Expected Maximum Score

After the average score criteria are obtained, the validity and practicality values of the products are grouped based on the modification of the assessment criteria. The validity and practicality value analysis uses the following equation with the criteria in Table 1.

Table 1. E-Module Validity and Practicality Criteria

Interval (%)	Category
75,01 – 100,00	Very Valid/ Very Practical
50,01 – 75,00	Valid/ Practical
25,01 – 50,00	Invalid/ Unpractical
00,00 – 25,00	Very Invalid/ Very Unpractical

In addition, this stage followed by one to one evaluation were carried out on three students to provide suggestions for the workhseet that has been designed. This evaluation using validation questionnaire from the aspects of worksheets display, mastery of concepts, motivation to learn and the acquisition of information sources. The results of this stage is called Prototype III. Furthermore, this stage the prototype III is evaluated through of small group evaluation in a group of students consisting of 6 students in class X, with different abilities of students (high ability, medium, and low ability levels). The small group evaluation used a student practicality questionnaire sheet. The results of the revised Prototype III were called Prototype IV.

The result of development and evaluation at this stage will be continued to the assessment phase to conducting large group trials (field tests). The assessment are carried out by practicality and effectiveness of the product. This phase aim to see the practicality and effectiveness of the worksheets based SSCS. Practicality is carried out by filling out questionnaires by a teacher and students to analysis criteria from the aspects ease of use, learning time efficiency, and benefits. Further, the effectiveness of the worksheets aim to observing learning by using worksheets based SSCS which is designed to improve students' critical thinking skills. The implementation of large group trials were taken from two class X of SMA Negeri 3 Padangsidimpuan, one class for experimental class and one control class that is not given treatment.

The data analysis technique used is qualitative analysis in descriptive form which describes the validation and quality of the experimental of worksheets developed. Effectiveness data of worksheets based SSCS were obtain from the effectiveness result by using pre-test and post-test to gain the average score of the students. Furthermore, the data result were analyzed using a statistical hypothesis test was carried out using SPSS and Systa. The critical thinking ability test results are obtained from learning

completeness scores from students' critical thinking skills test based on minimum mastery criteria. The analysis of critical thinking ability test results uses the following equation with the criteria in Table 2.

$$p = \frac{\text{Number of students who completed}}{\text{Total number of students}} \times 100\%$$

Table 2. Percentage of Completeness and Category

Interval (%)	Category
$p > 80$	Very Good
$60 < p \leq 80$	Good
$40 < p \leq 60$	Adequate
$20 < p \leq 40$	Less
$p \leq 20$	Very Less

III. RESULT AND DISCUSSION

3.1 Result

This research started from the preliminary research were obtain from problem analysis, curriculum analysis, and students analysis to design and development the worksheets based SSCS learning model. Based on problem analysis were conducted by 60 students using questionnaire, showed that 85,7% students thought that the material on Ecology and the Environment is considered to be difficult to understand. Further, as many as 71.4% of students thought that they need other teaching materials that support understanding of the material, 92.9% of students think they agree with the development of worksheets on Ecology and Environment material, also 71.4% of students learn about Ecology and the Environment by just seeing and observing.

The observation result also were obtain form interviews and filling out questionnaires by 4 biology teachers, the result showed that the lack of availability of teaching materials is one of the obstacles to achieving learning objectives. The teacher agrees that the Ecology and Environment materials are still difficult for students to understand. Based on curriculum analysis result the basic competencies used in development research are KD 3.10, 4.10, 3.11 and 4.11, however there are no indicators that lift about the perfect scientific approach. Therefore, the research want to develop the ecosystem and environmental worksheets. Furthermore, based on students analysis the worksheets based SSCS that will be produced is expected to be able to present students from concrete thinking to abstract thinking, also contain concepts, theories, ways to investigate individually and in groups so that they are able to make students think critically.

The development result of worksheets based Search, Solve, Create and Share in the materials of Ecosystem and Environmental has several components; (1) Cover, (2) preface page, (3) content page, and (4) evaluation. Some of the components are shown in Figure 1 and figure 2.

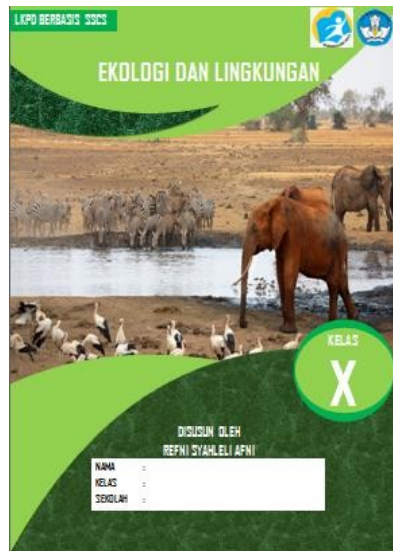


Figure 1. Worksheets based SSCS Cover

The preface page also has several components; (1) Worksheets profile, (2) description and instructions use of worksheets, (3) foreword, (4) table of contents, (5) list of picture, and (6) list of table. The content page of this worksheets based SSCS includes materials and pictures of ecosystems found in the surrounding environment. The content page consists of 4 learning activities.

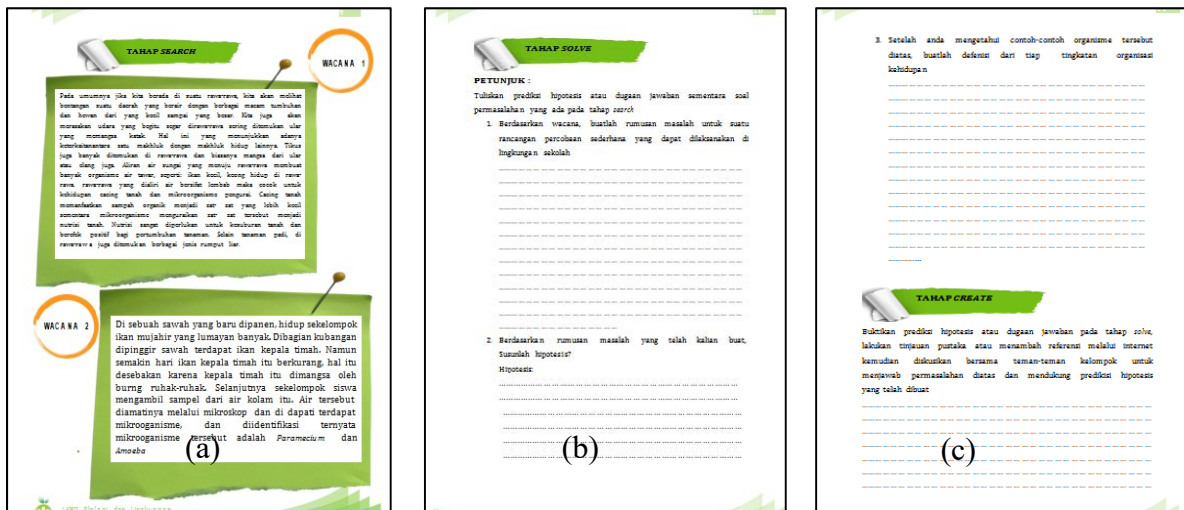


Figure 2. Learning activities; (a) Search stage, (b) Solve stage, and (c) Create stage

After the worksheets based SSCS is designed, a self-evaluation is carried out after the result are obtained from the worksheets. Based on self-evaluation result found the deficiencies and there are still components of worksheets that are not yet included in the worksheets. However, there are also some improvements such as writing and deepening the material so that a revision of the prototype I is needed. The improvement results from the self-evaluation resulted in a prototype II. Furthermore, an assessment is carried out by students through one to one evaluation from the students' perspective of the worksheets that has been developed. Based on one to one evaluation result showed that the learning model used in the worksheets with a scientific approach equipped with probing and prompting can help students answer the questions. Further, student can understand the language used in the worksheets.

This phase followed by an expert assessment through expert review validation consists of three lecturers from Padang State University. Expert assessment is carried out from four aspect, which are aspects from material expert, design expert, and language expert. Validity results of the worksheets based SSCS from material expert can be seen in table 3.

Table 3. Material Expert Validation Results

Assessment Apects	Interval (%)	Category
Content Eligibility	87,50	Very Valid
Language	91,66	Very Valid
Presentation	83,33	Very Valid
Graphics	90,00	Very Valid
Average	90,00	Very Valid

Based on material expert shows that worksheets based SSCS has been fully fill validity criteria of a worksheets material. The results of the validation by design experts show that there are improvements that must be made, especially regarding the cover of the worksheets, the background behind the title, margins, fonts and others to facilitate students' understanding of the worksheets. Validity results of the worksheets based SSCS from design expert can be seen in table 4.

Table 4. Design Expert Validation Results

Assessment Apects	Interval (%)	Category
Didactic	85,00	Very Valid
Construct	82,00	Very Valid
Technical	80,00	Very Valid
Average	82,33	Very Valid

Based on table 4 shows that worksheets based SSCS has been fully fill validity criteria of a worksheets design. The results of the validation of the worksheets design concluded that the worksheets based SSCSS in ecosystem and environmental design was in the criteria of Very Valid category with the average 82,33%. However, there are also provide suggestions from design expert for improvements to the worksheets developed. Furthermore, the result of language expert review showed that the feasibility of the language used shows that of the 6 overall components it is in the very good category with a score of 100%.

Prototype III followed to evaluated by a small group evaluation of 6 students in X class, to get improvement from the evaluation of the practicality of the worksheets based SSCS. The small group evaluation showed results with a total average 91,60% with very practical category. However, there are still sections on the worksheets for improvements to the worksheets developed, the revisions aim to produce a prototype IV to use in assessment phase.

The results of the assessment phase were carried out a field test, the subject was students in class X as a experiment class, and a biology teacher. The assesment results by teacher was 96,67% and by students 92,23% with very practical category. Assessment of worksheets based Search, Solve, Create and Share in ecosystems and environmental materials by reviewers is carried out to obtain information that will be used to improve the quality of the worksheets to be developed. Based the reviewer result shown the average 96,67% with very good category. The assessment followed to evaluated by limited group trial consisting of 74 students. Futher, based on the result shows that that worksheets based SSCS in ecosystems and environmental is in the Very Good criteria with an average percentage of 92,23%.

The assessment phase followed by effectiveness test of the worksheets in ecosystems and environmental materials by experiment and control class using pre-test and post-test, the assessment were carried out using the same instrument, namely an objective test in the form of multiple choice for 15 different essays. The result pre-test and post-test of experiment and control class can be seen in figure 4.

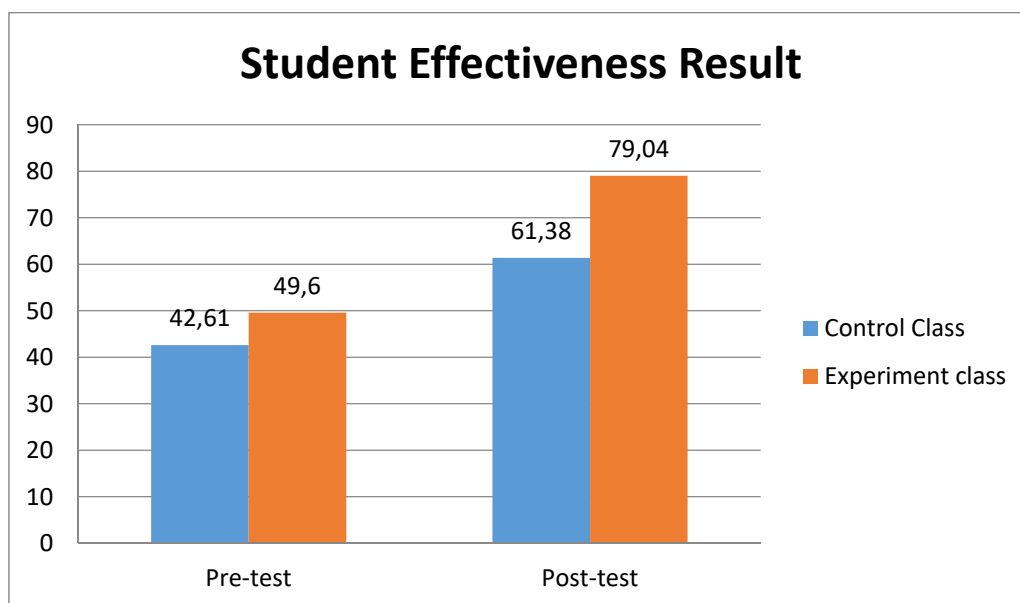


Figure 3. Pre-test and Post-test Result

The result was obtained through pre-test and post-test in the form of a written test given to the experimental class and control class. Based on Figure 4 it is known that post-test in learning activities result by experiment class is 79,04%, and post-test result by control class is 61,38%. This result shows that the learning outcomes in the experimental class are higher than the control class. Furthermore, this result followed by tested the hypothesis using the t test. This test was conducted to see the effect of using of the worksheets based Search, Solve, Create and Share in ecosystems and environmental materials in improving students' critical thinking skills. The hypothesis test shows that there is a significant difference between the learning activities of the control class students and the experimental class students.

3.2. Discussion

The product research that has been developed is a worksheets. Worksheets can be used as a teaching medium in the subject of ecosystems and environmental. The learning materials in the worksheet must be more applicable. This research is part of development research using Plomp model development which consisted of preliminary research phase, development or prototyping phase, and assessment phase. This development research aim to produce a quality media that can add insight and knowledge of students, especially in the subjects of ecosystems and environmental.

In the preliminary stage was to find a problem, weakness and a condition that is the root driving force for the development of a product. One of the problems found in this research is the availability of worksheets based SSCS. As expressed by Wathen said that a problem or problem is a situation that requires a solution for an individual to overcome a problem, the individual must have problem solving abilities [6]. In the world of education, students must encounter many problems in various subjects which of course these problems can be solved with the student's problem-solving abilities. Another basic problem is that students' understanding of ecosystems and environmental is still terminated.

According to the results of the analysis of the worksheets in ecosystem and environmental that is used today in the current class, it shows that the worksheets has not fulfilled the complete SSCSS (Search, Solve, Create and Share) aspect. Utami said that the SSCSS learning model is a learning model that uses a problem solving approach designed to develop critical thinking skills and increase understanding of science concepts [7]. Thus, this will be the basis or the beginning that encourages the development of worksheets based Search, Solve, Create and Share in Ecosystems and Environmental materials.

The results of the curriculum analysis shows that an analysis of important concepts that must be mastered carried out by students. The concepts in one of the Basic Competencies (KD) are interrelated with concepts in other KD so that students are able to achieve the learning indicators that have been formulated in the Lesson Plan (RPP). Based on the analysis of RPP shows that the indicators of ecosystem achievement and environmental have not met the complete SSCSS (Search, Solve, Create and Share)

rules. Materials analysis is carried out by identifying the main material that needs to be taught, collecting and selecting relevant material and rearranging it systematically. From the results of the analysis shows that students' scores in the material of ecosystems and environmental are on average low. This is also in line with the information obtained from students of SMAN 3 Padangsidempuan during the preliminary observation, it was known that ecosystems and environmental are classified as difficult materials to understand, this can be seen from the results of observations shows as many as 70.4% of students said that these subjects were difficult and boring while 29.6% say otherwise.

The second phase is the development or prototyping phase. Prastowo stated that the student worksheets consists of a series of tasks and information designed to guide students in independent learning and make it easier for teachers to carry out biology learning [8]. Teaching materials used by teachers in learning ecosystem and environmental materials was obtain from books, several publishers and internet references. As a result students receive instant information from internet media, so they do not train students' thinking skills and do not emphasize the process of finding the concept of biological material. A worksheets can help students find the concept of ecosystem and environmental material independently through the tasks and activities presented in the worksheets. This result followed by sjajanti statement, said that one of the requirements for the didactic aspect of a worksheets is to place more emphasis on the process of finding material concepts [9].

Based on needed result shows that 76.7% of respondents stated the need to use a worksheets and 85% agreed that in learning ecosystems and environmental using the practicum method. As a result, it is necessary to develop student worksheets and use practicum methods in learning ecosystems and environmental . Student worksheets designed in accordance with the results of the needs analysis of students' worksheets. The selection of the learning model of worksheets, namely the Search, Solve, Create, and Share (SSCSS) model, is adapted to the scientific approach listed in the 2013 curriculum, and is based on constructivism and contextual learning theories. Meaningful learning for students is the principle of constructivism learning theory. Also, Pribadi stated that the learning process based on constructivist learning theory is carried out by facilitating students to gain learning experiences that are used to build meaning for the knowledge learned [10].

The specification of worksheets based SSCS contains student activities based on Search, Solve, Create, and Share. The SSCSS-based activities contained in the worksheets include the following; (1) Search, this activity was to identify problems and solve problems in the form of answering questions about ecosystems and environmental. The problem that students identified in the activity was the difference between several ecosystems, (2) Solve, the activity was making a hypotheses or alleged answers to questions about ecosystems and environmental. At this stage students are required to think about answering questions about ecosystems and environmental, (3) The Create stage are the activities to observe the surrounding ecosystem and make documentation in the form of photos or videos of the second. At this stage students make direct observations and compare the similarities and differences between the two listed in the Search stage, (4) Share stage was a activity of communicating the results of the investigation/observation of ecosystems and environmental that have been carried out at the Create stage in the form of reports and presentations in groups.

The validation stage is carried out by material, design and linguistic experts. The assessment of the validity of the worksheets is carried out using the 2013 National Education Standards Agency (BSNP) assessment instrument. The results of the worksheets based on Search, Solve, Create, and Share validation have met the criteria for a good a worksheets. This is indicated by an average score of 3 from material experts on the feasibility aspect regarding the presentation of material and assignments which include being able to add insight to knowledge, arouse gratitude, involve students, develop scientific attitudes and care for the environment. Furthermore, Prastowo stated that teaching materials contain three aspects, namely knowledge, skills, and attitudes. A good LKPD can increase knowledge, involve students in developing skills and develop scientific attitudes [8]. The result design feasibility assessment includes construction and technical didactics. Aspects of the worksheets presentation as media include size, page density, cover design, and numbering. For the aspect of cover size and design of the worksheets, media experts gave a score of 3. The size of the worksheets hass been accordance with the needs, namely A4 (quarto). Also, Prastowo said that that the size of teaching materials can be accommodated according to learning needs [8]. The results of the validation of the readability of the text and ease of understanding got a score of 4, which means that the materials and activities contained in the worksheets can be clearly read by students. This is supported by the statement of Prastowo said that no matter how perfect the material, if students are not able to read clearly, the worksheets will not give maximum results [8].

The small scale trial phase was carried out by SMAN 3 Padangsidempuan in class X, which amounted to 38 students with the

aim of knowing the weaknesses/lack of worksheets based SSCS. The results showed a score of 91.6% of respondents stating that worksheets based on Search, Solve, Create, and Share was a good result. The respondents were agreed about the attractive appearance of the worksheets, the ease of understanding the language used in the worksheets, and the ease of understanding the material using the worksheets based Search, Solve, Create, and Share learning model. This is in accordance with the statements of Prastowo and Widjajanti stated that a worksheets as an interesting teaching material for students and using language appropriate to the child's developmental level will motivate them to study hard and study smart [8] [9]. Furthermore, all respondents was agreed about writing, fonts, sentence structure, pictures and presentation of writings and pictures in the worksheets in accordance with the worksheets graphic criteria. Widjajanti said that the technical requirements of an worksheets emphasize the presentation of the worksheets, namely in the form of writing, pictures, and appearances in the worksheets [9].

The assessment phase result shows the teacher respondents with a score of 96.67% of respondents stated that the worksheets based on Search, Solve, Create, and Share was very good. A large trial of worksheets based on Search, Solve, Create, and Share was applied to 2 classes carried out by 74 people at SMA Negeri 3 Padangsidempuan. Students' thinking skills result were taken by using observation techniques during learning using worksheets based on Search, Solve, Create, and Share. Slavin stated that the strategy for training thinking skills includes four steps, namely stating, searching, evaluating, and describing problems. The four steps described by Slavin are already reflected in the measured thinking skills indicators [11]. Based on the average percentage of classical thinking skills reaches 75%, which indicates that students' thinking skills in learning ecosystem materials using worksheet based Search, Solve, Create, and Share show a good results and the worksheet are effective on students' thinking skills. The Search, Solve, Create, and Share model has a problem solving learning approach, which is contained in the worksheets to make students active in solving a problems. Furthermore, through discussions with heterogeneous group members, it is possible for students to exchange ideas, express opinions and involve students taking an active role in learning materials on ecosystems and environmental. Also Mulyani said that interests, motivation, and activities affect learning outcomes. High activity will produce high learning outcomes and low activity will produce low learning outcomes as well [12].

The results of the effectiveness test of the worksheets based SSCS in the experimental class show that the worksheets for ecosystems and environmental is very well used. This result can be concluded that the worksheets based Search, Solve, Create, and Share model in ecosystem and environmental developed by researchers is suitable to be used as a companion to the learning process in the classroom. The development of worksheets has a good influence on improving students' thinking skills. This is because the achievement of student learning success is supported by the suitability of the development of worksheets used by students. The results of this study relevant to several previous studies, such as what has been done by Utami shows the produce higher learning achievement in the cognitive domain of students who are taught with the SSCSS learning model than PBI learning model [7]. Another study by Johan confirmed with the conclusion that there was a significant increase in students' ability to choose problem solving that took part in SSCSS problem solving learning [13].

IV. CONCLUSION

Based on the results of development research that has been obtained from 3 assessment criteria; Feasibility of materials, language design and design experts on the presentation of the worksheets based SSCSS (Search, Solve, Create and Share) was valid. Based on the practicality, and effectiveness it can be concluded that the worksheets based SSCSS was valid, practical, and effectively used in the biology learning process. The used of the worksheets based SSCSS can improve students of learning outcomes and help them to develop their critical thinking skills.

REFERENCES

- [1] Salampessy, Y.M. and Suparman, S. Analisis Kebutuhan E-Modul Berbasis PBL Berpendekatan STEM Untuk Meningkatkan Kemampuan Berpikir Kritis Dan Kreatif. *Prosiding Sendika*, Vol 5 No 1, 2019.
- [2] Indriana, Dina. *Ragam Alat Bantu Media Pengajaran*. 2011. Jakarta: PT. Diva Press.
- [3] Pizzini, E. L. Rethinking Thinking in the Science Classroom *Sci. Teach.* Vol 55, pp.22–5. 1988.
- [4] Hakim, T.A., Marianti, A. and Widiyaningrum, P. Development of SSCSS Based Material of Biological Diversity to Improve Critical Thinking Ability. *Journal of Innovative Science Education*, Vol 9 No 2, pp.220-226. 2020. <http://dx.doi.org/10.15294/JISE.V8I3.34930>

- [5] Zainiyati, H.S. Understanding the Cognition Process of the Students using the Internet as a Learning Resource. *Jurnal Pendidikan Islam*, Vo 3 No 1, pp.57-68. 2017. <https://doi.org/10.15575/jpi.v3i1.928>
- [6] Wathan, H. Analisis Kemampuan Pemecahan Masalah Matematis Siswa SMP pada Materi Persamaan Kuadrat. Skripsi Program Sarjana. 2021. Banda Aceh: Universitas Islam Negeri Ar-Raniry Darussalam Banda Aceh.
- [7] Utami, R. P. Pengaruh Model Pembelajaran Search Solve Create And Share (SSCSS) Dan Problem Based Instruction (PBI) Terhadap Prestasi Belajar Dan Kreativitas Siswa. *Bioedukasi*, Volume 4 No 2. 2011.
- [8] Prastowo, Andi. *Panduan Kreatif Membuat Bahan Ajar Inovatif*. 2015. Jogjakarta: Diva Press.
- [9] Widjajanti, E. Kualitas lembar kerja siswa. In *Makalah Seminar Pelatihan penyusunan LKS untuk Guru SMK/MAK pada Kegiatan Pengabdian Kepada Masyarakat*. Jurusan Pendidikan FMIPA Universitas Negeri Yogyakarta, pp. 2-5. 2008.
- [10] Pribadi, B. A. *Desain Sistem Pembelajaran*. 2009. Jakarta: PT Dian Rakyat.
- [11] Slavin, Robert E. *Psikologi Pendidikan Teori dan Praktik*. 2011. Jakarta: Permata Puri Media
- [12] Mulyani, D. Hubungan Kesiapan Belajar Siswa Dengan Prestasi Belajar. *Konselor*, Volume 2 No 1, 2013. <https://doi.org/10.24036/0201321729-0-00>
- [13] Johan, H. *Pembelajaran Search, Solve, Create And Share (SSCSS) Problem Solving Dibandingkan Pembelajaran Dengan Praktikum Verifikasi Dalam Meningkatkan Penguasaan Konsep Dan Berpikir Kritis Mahasiswa Pada Konsep Listrik Dinamis (Doctoral dissertation, Universitas Pendidikan Indonesia)*, 2012.