

PAPER • OPEN ACCESS

The development of student's worksheet use integrated model with character load at lower grade class

To cite this article: Risda Amini *et al* 2020 *J. Phys.: Conf. Ser.* **1470** 012085

View the [article online](#) for updates and enhancements.

You may also like

- [Optimize use of icare based student worksheet \(ICARE-BSW\) in physics learning at the introduction level](#)
Jurubahasa Sinuraya, Ida Wahyuni, Deo Demonta Panggabean et al.
- [Effectiveness of students worksheet based on mastery learning in genetics subject](#)
R R P Megahati, F Yanti and D Susanti
- [A Meta Analysis on Biology Worksheet' Students Forms](#)
Tri Windari and I Gusti Suryadharma



ECS
The
Electrochemical
Society
Advancing solid state &
electrochemical science & technology

DISCOVER
how sustainability
intersects with
electrochemistry & solid
state science research

The development of student's worksheet use integrated model with character load at lower grade class

Risda Amini^{1*}, Rusdinal², Usmeldi³ and Yullys Helsa¹

¹Jurusan PGSD, Universitas Negeri Padang, Jl. Hamka, Air Tawar, Padang, Indonesia

²Jurusan Administrasi Pendidikan, Universitas Negeri Padang, Jl. Hamka, Air Tawar, Padang, Indonesia

³Jurusan Teknik Elektro, Universitas Negeri Padang, Jl. Hamka, Air Tawar, Padang, Indonesia

*risdamini@yahoo.co.id

Abstract. The result of preliminary study show that student worksheet use in Elementary School has not been optimal in helping students improve students' knowledge, skills, and attitudes. Student worksheet cannot activate the student in learning. Therefore, worksheet use integrated model with character load was developed. The development research use a 4-D model which consists of four stages, namely define, design, develop, and assess. The research subject was a student worksheet. The respondents were teachers and first grade students at Elementary School in Padang, Indonesia. The research instruments were observation sheet, questionnaire, and learning outcomes test. The results showed that the validity of student worksheet using integrated model was categorized as valid. The practicality of teaching materials was include practical categories, based on teacher and student responses. The student worksheet was included effective categories based on student activities and learning outcomes. Student activities in learning include very high categories. Learning outcomes most students achieve minimum completeness criteria.

1. Introduction

National Education based on Pancasila and the 1945 Constitution of the Republic of Indonesia functions to develop capabilities and form dignified attitudes and national civilization in order to educate the life of the nation. National Education aim to develop the potential of students to become human beings who believe and fear to God, noble, healthy, knowledgeable, capable, creative, independent and a democratic and responsible citizen.

The success of the implementation of formal education, in general, can be indicated if learning activities are able forming student behavior patterns in accordance with educational goals. The learning process will be effective if it has adequate preparation and is well planned. Based on these reasons, the education department has been developing the Education Unit Level Curriculum (KTSP) into the 2013 Curriculum. The 2013 curriculum integrates basic competencies from various subjects, namely intradisciplinary, interdisciplinary, multidisciplinary, and transdisciplinary which is an integrated attitude, knowledge, and skill integrated in the basic competencies that have been combined with various subjects and linked to the problems found in the surrounding environment.

Integrated curriculum and integrated learning have a close relationship [1]. Integrated curriculum is a curriculum that combines a number of scientific disciplines through the integration of knowledge, skills, and attitudes. The integrated learning is much influenced by the exploration of topics in the curriculum so students can learn to connect the process and content of learning in a cross-disciplinary



manner at the same time. The suitable model to be developed and easily implemented in formal education at the elementary school formal education, one of which was an integrated model [2].

In elementary schools, integrated model can be illustrated on important elements, such as reading, writing, listening, and speaking skills that will connect holistically to various disciplines [2]. The 2013 curriculum says that integrated learning is recommended models to be applied in learning process. The importance of integrated learning suggests teachers must be able to prepare learning resources which is suitable with students' characters and natural environment. The developed learning resources are organized in the student worksheets. Student worksheets must be well designed to needs, learning models and competencies that students must possess.

Based on the results of observations carried out at 7-11 August 2018 in the Elementary Schools in Padang Utara sub-district, we found several problems: firstly, the student worksheets are mass-produced worksheets. Secondly, the student worksheets do not contain competency indicators. Thirdly, the exercises presented in the student worksheets have multiple-choice tests and short answers test that do not hone their skills. Fourthly, image presentation on student worksheets are less attractive, it makes students lose their motivation to learn. That mass-produced worksheets are unhelpful to achieve educational goals, due to the quality problems of invalid student worksheets [3]. Addressing these problems requires an integrated model-based student worksheet that can help active students in the learning environment and increase student interest in learning and influence learning success in a positive way.

Integrated learning model can be implemented in elementary schools because it uses classroom teacher system so that the teachers can arrange an integrated learning model. The development of elementary school-age children is holistic, integrated, and closely interrelated with each other. Learning characteristics of elementary school, namely: 1) learning should be in accordance with student's holistic life; 2) learning as a whole or holistic; 3) students learn gradually starting from simple things to more complex things. [4, 5, 6]. The integrated learning can improve students' attitudes, improve problem-solving, and lead to higher learning outcomes [7]. The learning process with an integrated model that connects the material with students real-life experiences so it can increase students knowledge and achievement of skills [2]. There are several characteristics that indicate whether the student worksheets are integrated model-based, namely: combining two disciplines or more in a relevant sense, having the flexibility of more than one field of study, application of learning related to real-life or everyday life and helping students develop diverse skills [6, 7]. The student worksheets can increase academic success, help students develop the exact meanings related to subjects that they learn, make them active in the learning environment and increase their interest in lessons, increase learning motivation and influence their success in a positive way [8,9].

2. Method

This research used the research and development 4D model from Thiagarajan. This model consisted of 4 stages, namely: define, design, develop, and disseminate. The definition phase was conducted to analyze the curriculum, analyze the needs, analyze the students, and literature review. The design phase was conducted to design student worksheet based on integrated model according to the result of the define analysis. The develop phase aims to produce student worksheet that are valid, practical, and effective. The disseminate phase is the stage of spread with a limited scale. The respondents were teachers and first grade students at Elementary School in Padang, Indonesia. The research instruments were observation sheet, questionnaire, and learning outcomes test. Data were analyzed with statistical descriptions to know the validity, practicality, and effectiveness of the student worksheet that were developed.

3. Result and Discussion

3.1. Validity of Student Worksheet

Validation for student worksheet is done by five validators, one content expert, and one design expert and three practitioner experts from elementary school teachers. Based on the results of the validation

of student worksheets from expert validators and practitioner validators can be seen in table 1. student worksheet validation from expert validators and practitioner validators can be seen in table 1.

Table 1. Validation Results of Student Worksheet

No	Aspect	Average	Category
1.	Didactic	4.13	Valid
2.	Content	4.00	Valid
3.	Feasibility	4.00	Valid
4.	Tampilan	4.08	Valid

From table 1, it can be seen that validation for worksheets uses integrated models in valid categories with an average score of 4.05. The character learning is very influential on students, so it is able to provide a high value of validity [11].

3.2. Practicality of Student Worksheet

The practicality of the student worksheet use the integrated model was conducted by testing the elementary school (SDN 05 Padang Utara). The trial was conducted in five meetings. Observers in this trial were researchers and teachers. Observers inspect the implementation of the learning process. Practicality of student worksheets in terms of student and teacher responses. The result from teachers' responses about student worksheets using the integrated model in learning reached an average about 81.3 with a practical category. While the students' responses to student worksheets using an integrated model reached 88.7 with a very practical category. Thus, it can be stated that student worksheet can helped the students and teachers in the learning process. The learning material are said to be practical if they can be used easily by teachers and students in learning [12].

3.3. Effectiveness of Student Worksheet

The effectiveness of the student worksheets is reviewed from the observation sheet of student learning activities and improvement of students' competencies in terms of attitudes, knowledge, and skills in each meeting.

3.3.1 Student Activity

The results of student activities at the trial stage in Elementary School (SDN 05) Padang Utara at the first grade class obtained a percentage about 89.4 with the very active category. While the results of student activities at the distribution stage in Elementary School (SDN 09) Padang Utara at the first grade class obtained a percentage about 88.7% with the very active category. More details can be seen in figure 1.

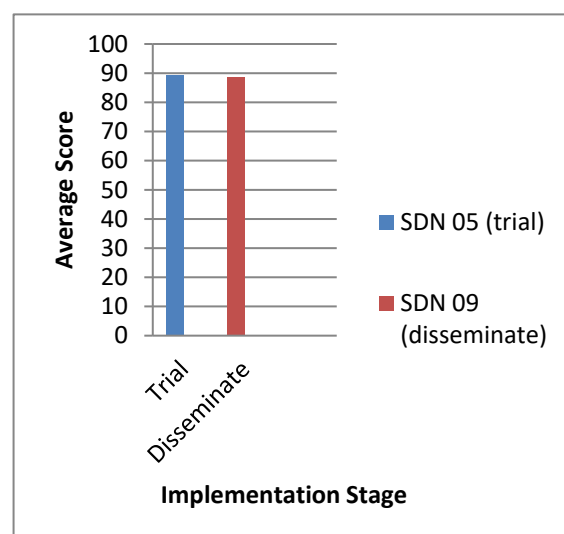


Figure 1. Student activity

Based on table 1, it can be concluded that validation for student worksheets use the integrated model is in the valid category with an average score of 4.05.

3.3.2 Student Learning Outcome

The student learning assessment must be in line with the applied curriculum [13]. Learning outcomes assessment aims to measure how far students can understand the lesson that has been given. Similarly. The students' learning outcomes are reviewed systematically and continuously so that it becomes meaningful information in making decisions [12]. The averages for students' competencies are presented in Table 2.

Table 2. Average student competency at SDN 05 Padang

No	Domain	Average	Category
1.	Attitude	83.9	Very good
2.	Knowledge	83.1	Very good
3.	Skills	82.5	Very good

The observation on aspects of attitudes resulted in an average of 83.6 and it was categorized as very good. The knowledge aspect showed students who reached the maximum completeness criteria were 23 out of 26 students. It means the percentage of students who have achieved the learning outcome is 88.5%, with an average of 83.1. The aspects of skills observed obtained an average 81.4, they were categorized as very good. In summary, it can be stated that student worksheets are effective to improve the students' competences [13]. The average competency of students at the stage of dissemination was presented in Table 3.

Table 3. Average student competency at SDN 09 Padang

No	Domain	Average	Category
1.	Attitude	83	Very good
2.	Knowledge	84.2	Very good
3.	Skilss	82.5	Very good

The observation on aspects of attitudes obtained an average of 83 and it was categorized as very good. The knowledge aspect showed that students who reached the maximum completeness criteria were 20 out of 25 students. It means the percentage of students who have completed is 80%, with an average of 84.2. The skill aspect obtained an average of 82.5, they were categorized as very good. Finally, it can be stated that student worksheets are effective to improve student competence. The learning devices are said to be practical if they can be used easily by teachers and students in learning [14]. The integrated learning model of integrated learning can enable students in learning developing thinking skills, social skills, and organizing skills. More details can be seen in figure 2.

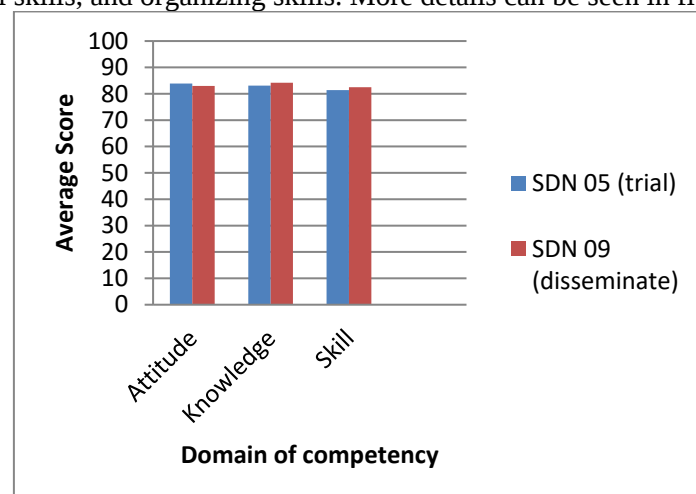


Figure 2. Student competency

The results of this study indicate that the level of validity, practicality, and effectiveness after testing the integrated model student worksheets was valid, practical, and effective.

4. Conclusion

There are some conclusions that can be drawn based on the result and discussion.

1. The developed student worksheets using the integrated model were valid and practical.
2. These integrated models had been effective in terms of positive activities of students. Moreover, students' learning outcomes reached more than 75%, which was beyond the minimum mastery learning criteria.
3. It is recommended that the student worksheets using the integrated model can be used as guidance for the teacher when developing other learning student worksheets.

References

- [1] Fogarty, R 1991 Ten Way to Integrated Curriculum Journal Educational Leadership Integrating the Curricula.
- [2] Amini, R 2018 Integrated model in Science for Elementary School *Journal of Physics*
- [3] Lee, C. D 2014 Worksheet Usage, Reading Achievement, Classes' Lack of Readiness, and Science Achievement: A Cross-Country Comparison *International Journal of Education in Mathematics, Science and Technology* **2** (2) 96-106.
- [4] Amini, R. 2017 The Development of Integrated Learning Based Students'book to Improve Elementary School Students' Competence. *Unnes Science Education Journal* **6**(2) (1586-1592)
- [5] Alghamdi, A. K 2017 The Effects of an Integrated Curriculum on Student Achievement in Saudi Arabia *Eurasia Journal of Mathematics, Science and Technology Education* **13** (9) 6079-6100
- [6] Bradbury, L. U 2014 Linking Science and Language Arts: A Review of the Literature which Compares Integrated Versus Non-Integrated Approaches *Journal of Science Teacher Education* **25** (4) 465-488.
- [7] Kurt, K., & Pehlivan, M. 2013 Integrated Programs for Science and Mathematics: Review of Related Literature. *International Journal of Education in Mathematics, Science and Technology*, **1**(2), 116-121.
- [8] Celikler, D 2010 The Effect of Worksheets Developed for the Subject of Chemical Compounds on Student Achievement and Permanent Learning. *The International Journal of Research in Teacher Education*, **1** (1) 42-51.
- [9] Yildirim, N., Kurt, S. & Ayas, A. 2011. The Effect of the Worksheets on Students' Achievement in Chemical Equilibrium *Journal of Turkish Science Education* **8** (3) 44-58.
- [10] Thiagarajan, S, Semmel, D.S, and Semmel, M I 1974 Instructional Development for Training Teacher of Exceptional Children Leadership Training Institute/Special Education Minnesota: Univ. of Minnesota Minneapolis.
- [11] Gnanakan, Ken 2013 The Integrated Learning Experience. *William Carey International Development Journal* **2** (1)
- [12] Chuenpraphanusorn, T., Boonchart, J., Snguanyat, O., Wachirawin, A., Chimbuaithong, S., Moonlapat, K., & Thitipetchkul, C 2017 The Project Evaluation for Development the Learning Integrated Model between the International Program (IP) and the Fundamental Level Curriculum in Education Hub Project of the Ministry of Education, Thailand *Mediterranean Journal of Social Sciences* **8** (6) 73-80.
- [13] Usmeldi 2015 Pengembangan LKS Siswa dalam pembelajaran Fisika Berbasis Riset di SMAN 1 Padang *Prosiding Seminar Nasional Fisika FMIPA UNJ*
- [14] Hanim, F., Suyanti, D.R., & Fauziyah. 2017. The Effect of Students Worksheet Based on Skill of Science and Motivation Process toward Learning Outcomes at Grade 4 SDNegeri 164330 Tebingtinggi *IOSR Journal of Research & Method in Education* **7**(5) 57-61
- [15] Cervetti, G. N., Barber, J., Dorph, R., Pearson, P. D., & Goldschmidt, P. G 2012 The Impact of an Integrated Approach to Science and Literacy in Elementary School Classrooms *Journal of Research in Science Teaching* **49**(5) 631-658.