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THE EFFECT OF USING INTEGRATED LEARNING MODEL ON SCIENCE LEARNING IN JUNIOR HIGH SCHOOL: SYSTEMATIC LITERATURE REVIEW

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Abstract: The implementation of the 2013 curriculum in learning uses a scientific approach, student-centered learning, integrated learning, developing of students' thinking skills, instilling spiritual and social attitudes, as well as exploring students' communication and collaboration skills. Based on the literature review, many schools teach science partially. It turns out that teachers face many obstacles when implementing integrated science learning. One of them is the difficulty of teachers designing integrated science learning models, causing the learning process not to achieve the desired results. It affects students' low learning outcomes and cognitive abilities. Therefore, this study aims to determine the effect and effectiveness of the Integrated Science learning model on science learning in junior high schools. The method used is a systematic literature review using PRISMA diagrams. The database used to search for literature is two digital libraries, namely Google Scholar and Mendeley. Literature screening was conducted to obtain scientific article publications from 2017 to 2021, which discuss using the Integrated Science learning model in science learning in junior high schools. The results of the scientific article search contained eight articles that would be analyzed and synthesized. The analytical technique used is the narrative method by grouping the extracted data. The results of this study affect students due to the use of the Integrated Science learning model, namely in terms of learning outcomes, 21st-century skills, and attitude competence. The use of the Integrated science learning model has proven to be effective in the science learning process in junior high schools.

Keywords: *Systematic Literature Review, Teaching Materials, Integrated, Junior High School.*

INTRODUCTION

The current globalization era demands every individual to improve their competence and quality as human resources who take an essential role in determining the growth and development of the nation [1]. In this case, the educational world is considered to become a place to create quality and competent human resources. However, each individual or student has a different ability to absorb and understand lessons during the educational process. In contrast, some students are fast, medium, or slow in understanding the lesson provided. It occurs because they have different ways of receiving information in the learning process [2]. Therefore, the quality of the educational process needs to be improved to create such expected human resources, such as applying learning strategies, models, methods, and learning processes that can make students easily understand the material taught [3]. In addition, a teacher must also know the needs and conditions of his students, including their level of intelligence.

Gardner mentioned that every human being has various intelligence that can be seen from many dimensions (multidimensional), and each of these dimensions has differences. Every individual has the same potential to develop each type of intelligence he has to the most amazing level, on the condition that there is support and teaching [4]. Every individual is special. It means that there are no stupid or smart children. Instead, some children stand out in a certain field. Research conducted previously stated that everyone has various intelligence but with different levels of development between the intelligence of one person to another [2]. Gardner stated that everyone has nine types of intelligence: linguistic, mathematical, visual, kinesthetic, musical, interpersonal, intrapersonal, naturalist, and extensional intelligence. Each individual can have all of this intelligence, but at different levels [5]

An appropriate learning model strategy is necessary to guide the learning process so that intelligence differences can be developed. One of the learning model strategies that can be applied is integrated learning. Therefore, the main problem of the current research is how the integrated learning model affects the students' multiple intelligences. The integrated learning model involves an approach and integration between fields of study that concerns curricular priorities in several fields of study, including overlapping skills, concepts, and attitudes [6]. In this case, weaknesses found based on several studies that have been analyzed include the absence of the application of the

Integrated Science learning model to improve students' multiple intelligences.

Therefore, the novelty of this research is the application of an integrated learning model in science learning about substances and their properties. This research expects that students who have different intelligence bits can catch the material taught easily according to their intelligence. Educators can link learning materials with other branches of science and integrate them to make students more aware of the context of the material being taught. In this case, integrated learning is a learning process with certain themes to link between disciplines and aspects of everyday life [7].

According to the theory of multiple intelligences, the integrated learning model is expected to emerge all intelligence aspects within the students during the learning process. There are several bits of intelligence, such as musical intelligence, which is slightly difficult to appear during the learning process or learning media, so students with musical intelligence have difficulty or decreased learning outcomes [8]. Therefore, science learning strategies and models need to be developed. The learning process using this integrated model can improve the quality of education [9].

In this case, the objective of this study is to determine the effect of the integrated learning model and the effectiveness of the Integrated Science learning model on science learning in junior high schools. Integrated science learning allows students to carry out many activities during the learning process and does not require excessive time because such a learning model does not require teachers to collaborate with other teachers, but students are required to carry out many activities during the learning process and are required to have organizing skills through flow diagrams, social skills, and thinking skills [10].

RESEARCH METHOD

This research was conducted through a literature review study by Snyder using the PRISMA method, commonly known as Preferred Reporting Items for Systematic Reviews and Meta-analyses [11-12]. Furthermore, this research was carried out based on Research Question (RQ) to get maximum results in writing the literature. Such a research question is structured to focus more on the literature review and make it easier for researchers to find related data. The Research Question (RQ) in this study is summarized in Table 1 below.

The articles employed in this literature review are articles obtained using Google Scholar and Mendeley. The literature search was carried out from September-November 2021. The articles collected were then sorted according to the research topic, obtaining ten research articles as the representative articles on the use of the integrated learning model in science learning in junior high schools. In addition, the articles chosen were those which were published in the last five years. In selecting articles used in literature writing, inclusion and exclusion criteria were needed to select the main research. The author further used the search results for data with these criteria to review articles. The inclusion and exclusion criteria in this literature can be seen in Table 2.

Table 1. Research question

Research Question	Motivation
1) What are the effects of the Integrated Science learning model on science learning in Junior School?	Identification of the effects of the Integrated Science Learning Model on Science Learning in Junior High School
2) How does the effectiveness of the Integrated Science learning model in science learning in Junior High School?	Identification of the effectiveness of the Integrated Science Learning Model on Science Learning in Junior High School

Table 2. Inclusion and Exclusion Criteria

Inclusion Criteria	1) Research articles published in 2016-2021, 2) Research topics include science learning, 3) Research subjects are limited to junior high school level 4) The research article method is in the form of the experiment and research and development. Particularly for the research and development, researchers only chose articles that conduct research up to the field trial stage
Exclusion Criteria	1) Research articles which cannot be accessed completely 2) Literatures in the forms of undergraduate thesis/ master thesis/ dissertation

After the inclusion and exclusion criteria were determined, the articles that would be reviewed were further selected. The following diagram shows the article selection process (figure 1).

The data analysis technique applied is the narrative method. Such a method describes the effectiveness of applying an integrated learning model in science learning in junior high schools.

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This research applied the principle of effectiveness stated by Kalvin, Utami, and Warneri that teaching materials are effective when at least two of three indicators in science learning. These indicators include the learning process, students' learning motivation, and student learning outcomes, where the latter indicator must be achieved [13].

RESULTS AND DISCUSSION

Based on the literature review results, there is an effect of the Integrated learning model applied at the junior high school level on science learning, including 21st-century skills, learning outcomes, and attitude competencies. Table 3 shows the integrated learning model in science learning applied at the junior high school level and its references.

Table 3. Effects of integrated learning model on students' science learning in Junior High School

No	Effect	Reference
1	21st Century Skills	Tika resti pratiwi and muslim (2016), yeni widiyanti, indri nurwahidah, dwi septiana dewi (2019), zaitul hidayat, rahima syabrina sarmi, ratnawulan (2020), sanimah (2018)
2	Learning Outcomes	Eli mufidah (2017), nurhikmah sasna junaidi dan afdhal ridha (2018), Muhammad zulkifli, syamsu and syahrul saehana (2016), Rahmi Laila, asrizal, renol afrizon, and Festiyed (2019)
3	Behavioral Competence	Dian arima gusti and ratnawulan (2021), Maulana ihwanudin, budi astute and agus yulianto (2018)

Figure 3 shows that applying the integrated learning model in science learning in junior high schools has a dominant effect on students' 21st-century skills and learning outcomes by 40%, respectively. In contrast, the remaining percentage shows the effects on students' behavioral skills. These data prove that from 2016 to 2021, articles discussing the application of the integrated science learning model in junior high schools have more influence on the students' 21st-century skills and learning outcomes.

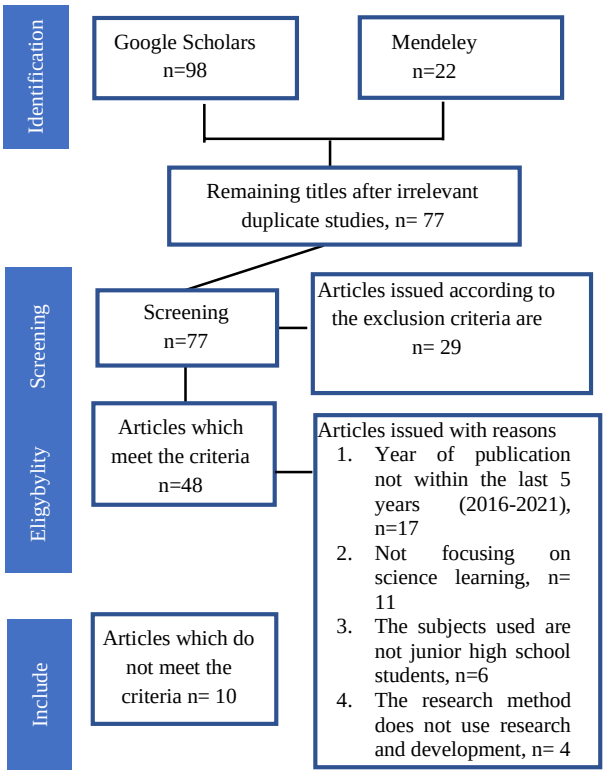

Figure 1. Prism Diagram

The effect of the Integrated Science Learning Model in Table 3 can be illustrated in a graph and diagram in the following Figure 2.

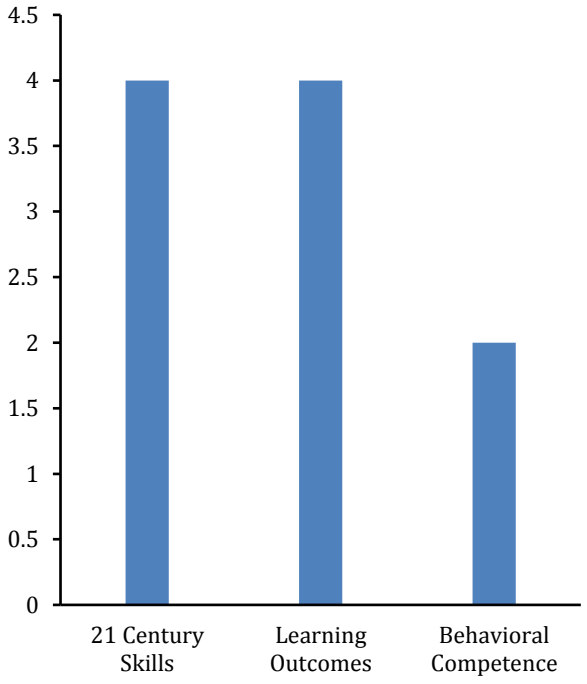

Figure 2 on the effect of the integrated Science learning model.

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Table 4. Research Method

No	Research Method	References
1	R&D	zaitul hidayat, rahima syabrina sarmi, ratnawulan (2020), sanimah (2018) Eli mufidah (2017), nurhikmah sasna junaidi and afdhal ridha (2018)
2	Experiment	Muhammad zulkifli, syamsu and syahrul saehana (2016), Rahmi Laila, asrizal, renol afrizon, and Festiyed (2019)
3	Survey	Dian arima gusti and ratnawulan (2021), Maulana ihwanudin, budi astute and agus yulianto (2018) Tika resti pratiwi and muslim (2016), yeni widiyanti, indri nurwahidah, dwi septiana dewi (2019),

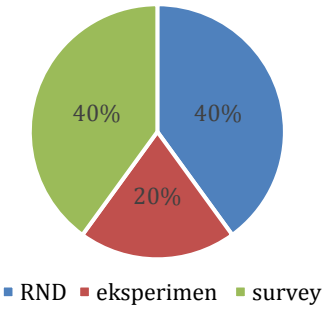

Figure 3. The research method was applied in the research.

Based on the results of the article review that has been conducted, it was found that the application of the integrated learning model in science learning in junior high school is considered effective. It is also supported by previous research conducted by Muhammad Zulkifli, Syamsu, and Sahrul Saehana, which revealed the application of an integrated learning model in students of VIII class of SMP Negeri 3 Palu had increased the science learning outcomes [16]. It can be seen from the average pre-test score for the 1st experimental class, which obtained 5.80, while the average post-test score is 14.97. Furthermore, in terms of the 2nd experimental class, the average pre-test score was 6.23, while the average post-test score was 13.17. Based on the data analysis, the test was carried out using a two-party t-test statistical technique to test the difference in the mean scores of student learning outcomes with a significant level of α=0.05. The results obtained are tcount = 2.75 and ttable = 2.00.

Such differences occur due to the provision of material given in learning in the two classes, which is by linking the material and concepts in science subjects and combining the materials between science and mathematics subjects. Based on the research conducted by Tayyib, it was revealed that the integrated model could increase students' motivation to learn science and is effectively applied in learning[[19].

Furthermore, the research carried out by Gemmy Nestiti shows an average initial knowledge score of 63.28 in the experimental group and 64.84 in the control group [20]. Hence, it can be concluded that applying the integrated science learning model in the learning process has several benefits for the students. It includes developing students' scientific attitudes. Students gain knowledge/experience by themselves. Students become more confident about the truth of the facts found and develop students attitudes to hold exploratory studies on science and technology. From these benefits obtained, students can further improve their science learning outcomes.

Based on the results of previous research carried out by Mufidah, the application of integrated science learning on the Eye theme to improve the students' achievement, data obtained that the application of integrated science learning of the integrated type to the Eye theme affected increasing the learning achievement of class VIII students at SMP Negeri 1 Babat. Students also responded positively after applying integrated science learning to the Eye theme [10].

Based on the results done by Herlin, it can be found that the integrated learning model is very well applied in class VII of MTs Negeri Lemahsugih on the subject of the diversity of living things. In this case, it was obtained that the critical thinking skills of the experimental class students who used the integrated learning model were higher than the control class, which did not use the integrated learning model. In addition, there is a significant effect of the integrated learning model on students' critical thinking skills [9].

Science learning is delivered using various supporting factors, including learning tools and media, such as books. In this case, student books have several advantages, such as containing much information on aspects of knowledge, aspects of student attitudes, and student skills to achieve student competencies [21]. In addition, Hidayat revealed that it is known that learning media that uses an integrated model are effective in improving the 21st-century skills of students, including critical thinking and problem solving, creative and innovative skills, as well as communication and collaboration skills [7].

The thinking ability of students who used Integrated Science teaching materials is better than the thinking abilities of students who used partial

Science teaching materials [22]. Therefore, it is suggested that teachers apply Integrated Science teaching materials as a teaching and learning guide. The integrated learning steps are the same as other learning models, including planning, implementation, and evaluation [21]. Applying an integrated learning model is very important because a teaching and learning approach involving several fields of study can provide a meaningful learning experience for students [23].

In schools, the integrated learning model can also be applied to the implementation of science learning to create interdisciplinary teacher togetherness in planning and implementing the learning process [24]. The Integrated learning model is applied by combining subjects by setting curriculum priorities and determining overlapping skills, concepts, and attitudes in several subjects [25].

In addition to cognitive aspects, there are also effective psychomotor assessments. The integrated learning model allows students to develop three domains of educational goals simultaneously [26]. The three domains include attitudes, skills, and cognitive insight. Students' learning motivation can be improved and enhanced using integrated science learning methods [27]. The learning process applied to students fosters a high sense of interest and enthusiasm for learning because the learning is very fun [28].

The application of the integrated science learning model can be used as one of the strategies and learning models in science learning both for students and teachers of junior high school. Furthermore, an integrated learning model can improve student learning outcomes, as proven by the achievement of student test scores in undergoing tests that reach the minimum mastery criteria standard. The integrated science learning model can also improve 21st-century skills, including improving critical thinking skills, problem-solving skills, mastery of HOTs in the learning process, and attitude competence, as proven by previous research.

CONCLUSION

The Integrated learning model in the science learning process in junior high schools can affect student learning outcomes, conceptual understanding, and critical thinking. This research shows that applying the time-integrated learning model in the science learning process in junior high school is very effective as a source of learning models for teachers and students in science learning in junior high school. Therefore, the researchers suggest that the integrated learning model can be applied in the science learning process in junior high school. The reason is that with the application of the integrated science learning model, students can train and improve students self-efficacy according to government expectations as stated in the 2013 curriculum regulations. Furthermore, the researcher also suggests that the results of this study can be used as a reference in similar research activities to conduct trial research on a larger scale or wider scope.

REFERENCES

[1] Ihwanudin, M., Astuti, B., & Yulianto, A. (2018). Bahan ajar IPA terpadu tipe integrated berbasis komplementasi ayat-ayat Al-Quran. UPEJ Unnes Physics Education Journal, 7(3), 36- 42.

[2] Saldayu, F., Ristiono, R., Yogica, R., & Sumarmin, R. (2019). Relationship of Multiple Intelligence with Cognitive Learning Outcomes of Students in Class VIII Science Subjects of SMP 13 Padang. Jurnal Atrium Pendidikan Biologi, 4(1), 1-7. DOI: http://dx.doi.org/10.24036/apb.v4i1.4650

[3] Ambaraputri, I. A. P. D., Pudjawan, K., & Agustiana, I. G. A. T. (2020). Pengaruh Model Pembelajaran Think Pair Share terhadap Multiple Intelligence dan Hasil Belajar IPA. Jurnal Penelitian dan Pengembangan Pendidikan, 4(2), 306-315.

[4] Syaikhu, A. (2020). Strategi Pembelajaran Berbasis Multiple Intelligences. Auladuna: Jurnal Prodi Pendidikan Guru Madrasah Ibtidaiyah, 2(2), 5975.

[5] Fitri, R., Selaras, G. H., & Andima, R. (2019). Multiple Intellegences of Social Sciences and Linguistics Students Grade X Crossing Biology Interest:(Multiple Intellegences Peserta Didik Kelas X Peminatan Ilmu Sosial dan Bahasa Lintas Minat Biologi). Bioeducation Journal, 3(2), 101112. http://repository.unp.ac.id/id/eprint/24620

[6] Rahma, S. N., & Agustin, H. (2021). Profil Implementasi Model Integrated pada Pembelajaran IPA di Indonesia (2012-2021). Jurnal Inovasi Penelitian Dan Pengabdian Masyarakat, 1(1), 1-15.

[7] Hidayat, Z., Sarmi, R. S., & Ratnawulan, R. (2020). Efektivitas Buku Siswa IPA Terpadu dengan Tema Energi dalam Kehidupan berbasis Materi Lokal Menggunakan Model Integrated untuk Meningkatkan Kecakapan Abad 21. Jurnal Eksakta Pendidikan (JEP), 4(1), 49-56.

[8] Widyawati, A., & Setianingsih, W. (2021). Analisis Representasi Multiple Intelligences Dan Sets Dalam E-Comic Ipa. Jurnal Inovasi Penelitian, 1(10), 2069-2084.

[9] Herlin, F. F. (2013). Pengaruh Model Pembelajaran Terpadu Tipe Integrated Terhadap Keterampilan Berpikir Kritis Siswa Pada Mata Pelajaran IPA Pokok Bahasan Keanekaragaman Makhluk Hidup di kelas VII MTSN Lemahsugih kabupaten Majalengka

(Doctoral dissertation, IAIN Syekh Nurjati Cirebon).

[10] Mufidah, E. (2017). Penerapan Pembelajaran IPA Terpadu Tipe Integrated pada Tema Mata Kelas VIII Di SMP Negeri 1 Babat Lamongan terhadap Peningkatkan Prestasi Belajar Siswa. Cendekia, 9(01), 43-66.

[11] Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. Journal of Business Research, 104, 333–339.

[12] Page, M. J., & Moher, D. (2017). Evaluations of the uptake and impact of the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) Statement and extensions: a scoping review. Systematic Reviews, 6(1), 263.

[13] Kalvin, H., & Utami, S. Peningkatan Aktivitas Pembelajaran Ilmu Pengetahuan Alam melalui Metode Inkuiri Kelas V Sekolah Dasar 18 Berangan Pale. *Jurnal Pendidikan dan Pembelajaran Khatulistiwa*, *2*(8).

[14] Pratiwi, T. R., & Muslim, M. (2016). Using Integrated Type on Science Learning for Improving Junior High School Students' critical Thinking Skills. Jurnal Pendidikan Fisika Indonesia, 12(1), 54-64.

[15] Sanimah, (2018). Penerapan Pembelajaran Ipa Terpadu Model Integrated Dan Networked Untuk Meningkatkan Kemampuan Pemecahan Masalah Siswa Smp Pada Tema Pencemaran Air. *Jurnal Serunai Ilmu Pendidikan.* 4 (1), 231-240

[16] Zulkifli, M, Syams, Sahrul, S. (2016). Penerapan Model Pembelajaran Terpadu untuk Mengukur Hasil Belajar Siswa SMP Negeri 3 Palu. *Jurnal Pendidikan Fisika Tadulako Online*. 4(2), 45-49.

[17] Laila, R., Asrizal, Afrizon, R., & Festiyed. (2019). Pengaruh Buku Ajar IPA Terpadu Tema Gerak Dalam Kehidupan Sehari-hari Mengintegrasikan Strategi REACT pada Hasil Belajar Siswa pada Aspek Pengetahuan dan Keterampilan Kelas VIII SMPN 7 Padang. Pillar of Physics Education, 12(2), 113–120.

[18] Gusti, D. A. (2020, March). An analysis of development of student's worksheets with the theme integrated science energy in life by using integrated type of integrated learning in 21st century. In *Journal of Physics: Conference Series* (Vol. 1481, No. 1, p. 012045). IOP Publishing.

[19] Tayyib F. (2013). Perbedaan Model Pembelajaran IPA Terpadu Tipe Integrated dengan Tipe Connected Terhadap Peningkatan Motivasi Belajar Peserta Didik SMP Negeri 2 Ngrampal. Yogyakarta. Digital Library: Skripsi Tidak Terpublikasikan

[20] Nastiti, G., & Hinduan, A. A. (2013). Pembelajaran IPA model integrated untuk meningkatkan motivasi dan hasil belajar pada pokok bahasan Energi di SMP Negeri Purworejo, Jawa Tengah. Berkala Fisika Indonesia: Jurnal Ilmiah Fisika, Pembelajaran dan Apliksinya, 4(1 & 2), 01-10.

[21] Prastowo, A. (2013). Pengembangan Bahan Ajar Tematik. Yogyakarta: Diva Press.

[22] Yuliati, L. (2013). Efektivitas Bahan Ajar IPA Terpadu Terhadap Kemampuan Berfikir Tingkat Tinggi Peserta didik SMP. Jurnal Pendidikan Fisika Indonesia, (9): 53

[23] Hayat, N. (2021). Pendekatan Pembelajaran Terpadu Tipe Integrate Dapat Meningkatkan Hasil Belajar Peserta Didik Di Sman 1 Montong Gading. Teaching And Learning Journal Of Mandalika (Teacher) e- ISSN 2721-9666, 2(1 (April)), 66-78.

[24] Diniya, D. (2019). Pembelajaran IPA Terpadu Tipe Integrated melalui Model Inkuiri Terbimbing Tingkat Sekolah Menengah Pertama. Journal of Natural Science and Integration, 2(2), 143-152.

[25] Sidiq, H. A., Prihandono, T., & Wahyuni, S. (2021). Pengembangan Bahan Ajar Terpadu Tipe Integrated Pada Pembelejaran Ipa Di Sekolah Menengah Kejuruan (Pokok Bahasan Bumi dan Benda Langit). Jurnal Pembelajaran Fisika, 3(2), 189-196.

[26] Karli, H. (2003). Head-Hand-Heart (3H) Dalam Kurikulum Berbasis Kompetensi. Bandung: Bina Media Informasi

[27] Trianto. (2007). Model Pembelajaran Terpadu dalam Teori dan Praktek. Jakarta: Prestasi Pustaka Publisher.

[28] Riduwan, (2010). Belajar Mudah Penelitian. Bandung: Alfabeta.