



LITERATURE REVIEW: INDEPENDENCE CHARACTERS IN PHYSICS SUBJECTS

Khin Than Win¹, Mashelin Wulandari^{2,*}

¹ Department of Physics, Loikaw University, Loikaw, Myanmar

² University State of Yogyakarta, Yogyakarta, Indonesia

Corresponding author email: mashelinwulandari@gmail.com

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Abstract :

The method used is System Literature Review. This method is used with the intention of identifying, evaluating and synthesizing research results and ideas that have been produced by researchers and practitioners. Data collection techniques using literature studies. Sampling data was collected by looking for several scientific articles from the results of previous researchers' research experimentally, descriptively, or developmental research, based on literature studies, to be studied further and conclusions drawn from the research topics studied. The article review process in this study discusses the scope of evaluation of high school students' spectacle learning. The instruments used in data collection included a review of scientific articles sourced from the last 25 references from Google Scholar, hands-on science, and article research gates reviewed by researchers who focused on the topic researched. Then data analysis was carried out in this study using a synthetic matrix.

Keywords: Literature review; Independence; Physics

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INTRODUCTION

Education is an effort to help students so that they are able to carry out life tasks independently and be responsible orally and morally (Harefa, 2020; Ramadan et al, 2022; Ndraha, 2022). Education aims to increase knowledge, creativity, and abilities through teaching provided by teachers (Sunaryo, 2014; Oktavia, 2020; Faiz & Soleh, 2021; Fadillah, 2020). Education is very useful for improving and providing information and understanding of all existing knowledge to everyone (Purbosari, 2016; Harefa, 2020; Indriani & Mufit, 2023; Ningsih, 2022). Especially if you look at the changing times, making the younger generation inevitably have to continue learning and getting a good education.

Learning is assistance provided by educators so that the process of acquiring knowledge and knowledge, mastering skills and character, as well as forming attitudes and beliefs in students can occur (Sianturi, 2016; Suardi, 2018; Yestiani, 2020) In other words, learning is a process to help students so they can study well (Suardi, 2016; Tafonao, 2018; Yusra et al., 2023). Learning as teaching gives the impression that it is only the work of one party, namely the work of the teacher (Fahri, 2019; Ahmadi & Syahrani, 2022; Purwanto et al., 2016). While learning also implies an interaction between teachers and students.

Independent student learning is independent learning, not depending on others, students are required to have their own activeness and initiative in learning, attitude, nation and state (Sutama et al., 2014; Aziz, 2018; Sianipar et al., 2023). Independent character education is a conscious effort made to shape the character, morals, character, and mentality of an individual, so that his life does not depend on the help of others in completing each of his tasks (Nova, 2019; Senjaya, 2020; Rahadiyani et al., 2023). Student learning independence is a reflection of a creative attitude, freedom of action and responsibility which is marked by learning initiatives and a desire to gain new experiences (Safitri & Budhi, 2017; Delyana, 2021). One of the characteristics of independence in students is having the initiative to do something.

Physics is a branch of science that examines natural phenomena through a series of processes or scientific activities (Saputra, 2019; Safitri, 2019; Dani et al., 2019). Physics learning is a study of natural symptoms and phenomena in everyday life that can be reviewed through activities such as experience, observation and experimentation (Suryaningsih, 2017; Kristyowati, 2019; Rasmi et al., 2022). Physics based on a scientific attitude to improve science process skills (Damanik, 2013; Khori, 2021; Astalini et al., 2022). Physics learning aims to equip students with knowledge, understanding, and ability to develop knowledge.

RESEARCH METHOD

The method used is System Literature Review. This method is used with the intention of identifying, evaluating and synthesizing works of research results and ideas that have been produced by researchers and practitioners. Data collection techniques using literature study. Literature study is carried out by reading literature or written sources such as books, previous research, papers, journals, articles, reports and magazines related to research (Ridwan et al., 2021; Mandriesa, 2020; Nugroho, 2020).

Research targets/subjects (for qualitative research) or sample-population (for quantitative research) need to be explained clearly in this section. It is also necessary to write down the technique of obtaining subjects (qualitative research) and/or the sampling technique (quantitative research). Data sampling was carried out by looking for several scientific articles from the results of research by previous researchers in experimental, descriptive, or developmental research, based on literature studies, to be further studied and conclusions drawn on the research topics studied (Rukin, 2019; Ridlo, 2020). The process of reviewing articles in this study discusses the scope of evaluation of learning physics for high school students. The instruments used in data collection include review of scientific articles sourced from the last 25 references from Scholar Google, direct science, and article research gates reviewed by researchers that focus on the topic being studied.

Data analysis was carried out in this study using a synthetic matrix. The synthesis matrix itself is a technique for processing literature study data by interpreting it in the form of diagrams or tables (Habibie & Tasnim, 2020; Pitriani & Fitriani, 2023). Based on this, in this study the researcher made the results of a literature study using a table consisting of column authors and year of publication, title, research design, and research results.

RESULTS AND DISCUSSION

The results of a literature study conducted on scientific articles based on the topics studied, namely the independent character of learning Physics with a total of 25 articles. The following is the result of a review of articles on independent character research on Physics learning.

Table 1. Results of Article Reviews

Author and Year	Title	Research design	Research result
Mustikarini (2016)	Development of Physics Magazine as an Alternative Independent Learning Resource with Islamic Character through Dynamic Fluid Material to Grow Spiritual Attitudes and Learning Motivation in Class Xi Students of SMA Negeri 1 Bantul	This study uses the developmental research method using the 4D model (Define, Design, Development, Dissemination).	The results of this development research indicate that the product in the form of an Islamic Physics Magazine which is developed is feasible to be used as an alternative source of independent learning.
Susilawati et al., (2015)	Real Laboratory Learning and Independent Physics Assignments for Vocational High School Students According to 21st Century Skills	This research uses quantitative and qualitative research methods	Based on the results of the study, it was found that the performance skills and activeness of students who received <i>real laboratory learning</i> with independent assignments were better than the results of the performance tests of students who only received <i>real laboratory learning</i> .
Setyaningrum & Wiyatmo (2016)	Development of Sibi-Based Physics Learning Videos on Vibration and Wave Material as Independent Learning Media to Increase Learning Interest in Deaf Students Development Of Physics Learning Video Based On Sibi On Subject Matter Of Vibrations And Waves As Self Learning Media To Increase The Learning Physics Interest For Deaf Students	This research is a development research (R&D) with a 4-D model	The results showed that: (1) the SIBI-based physics learning video was feasible to use for learning physics in deaf students and obtained a very good category in terms of the CVI validity analysis which obtained a value of 0.96 (very good) and the results of the responses of students who received CVI 0.6 (very good), and reliable according to PA the average PA value is 95.6%, (2) the increase in students' interest in learning before and after showing the SIBI-based physics learning video has a standard gain value of 0.001 in the low category.
Sari (2020)	The Practicality of Android-Based Isomorphic Physics Applications (Forfis) in Supporting Independent Learning	This type of research is descriptive research.	The percentage results are then interpreted according to practicality criteria. Data analysis showed that the average student response was 92% in the "very good" category. This means that students are very interested in the FORFIS application.

Author and Year	Title	Research design	Research result
Sari (2021)	Development of Basic Physics Practicum 1 E-Module with STEM Approach to Grow Independent Learning	The development model used is 4D (Define, Design, Develop, and Disseminate)	Thus the FORFIS application is an independent learning application that is feasible and practical to use in fulfilling student learning resources. The results of the interpretation show that the product is feasible, practical and effective for use in the learning process. The average feasibility score is 71, and the practicality aspect has a score of 38. Both have very good criteria. In addition, the product developed also increases student independence in experimental activities.
Wahyudi (2017)	Development of an E-Learning Based High School Physics Learning Program with Schoology	The research design uses a research and development model	The results of the product test show that the product is validated by experts, suitable for use and attractive (3.25); easy to use (3,24); and useful (3.31). Product tested to be effectively used in learning with a percentage of 88.82%
Sujito (2019)	Use of Independent Based Practicum Modules Phet Simulation in Learning Physics About Parabolic Motion on a Flat Plane	This research is a qualitative descriptive research	module about motion parabola using PhET simulation "Projectile Motion" can be said to be effective to help students understand parabolic motion through independent study outside of hours face to face.
Goddess (2013)	Development of a multimedia-based core physics learning module with Swishmax as an independent learning medium for students of the Department of Physics, FM-PHYSICS, State University of Malang	The research design uses a research and development model	module _ developed based on multimedia worthy For used as a learning medium physics core.
Khamdani (2014)	Development of a Physics Encyclopedia Based on the Integration of Islam-Science as a Source of Independent	This research is a research development or Research and Development (R&D) procedural model,	The results of this study are (1) a physics encyclopedia based on the integration of Islam-science as a source of independent learning for

Author and Year	Title	Research design	Research result
	Learning for Senior High School Students	namely a descriptive model	SMA/MA students. The quality of the encyclopedia based on the assessment of material experts, media experts, integration-interconnection experts, and SMA/MA teachers is very good (SB). (2) The response of SMA/MA students to the developed physics encyclopedia is included in the strongly agree (SS) category.
Widiana (2013)	Development of an Encyclopedia of Physics Measuring Instruments as a Source of Independent Learning for Class X SMA/MA on Quantities and Units Material	This research is an R&D research with a procedural model that adapts development research procedures	the results of the encyclopedia quality assessment and student responses were analyzed using the assessment criteria guidelines and response criteria to determine the quality of the encyclopedia and student responses
Bakri et al., (2015)	Visual-Based Physics Module Development for High Schools (SMA)	The method used in this research is the research and development method.	These results as a whole indicate that this module can be used as a learning resource in physics learning to increase student independence.
Yudanto (2017)	Development of Mobile Learning Learning Media on the Inventor-based Android Platform as an Independent Learning Source to Improve Physics Learning Outcomes of SMA N 8 Yogyakarta Students Mobile Learning Media Development On Android Platform Based On App Inventor As A Source Of Self-Study To Improve Educational Outcomes On Physics Subject Of SMA N 8 Yogyakarta Students	research is a type of research and development (R&D)	The results show that: (1) <i>mobile learning media</i> on the Android <i>platform</i> based on App Inventor in physics learning the subject matter of elasticity has a feasibility level in the "very good" category, and (2) an increase in student learning outcomes in the subject matter of elasticity in the "moderate" category ” with a <i>gain score</i> of 0.54.
Polonia (2014)	Development of an Android-based physics dictionary application as an alternative source of independent learning for	research is a type of research and development (R&D)	Based on the results of the expert validation, it can be said that the Android physics dictionary application is a feasible criterion and can be

Author and Year	Title	Research design	Research result
	class X students on the subject of static and heat fluids		used as an alternative source of independent learning. This physics dictionary application needs to be tested further, namely by having an empirical test of the Android physics dictionary application
Azizy et al., (2019)	Design of Independent Learning Activity Unit (UKBM) in Developing Scientific Collaboration Skills of Students in Physics Subject	This research is a development research using the ADDIE development model (Analysis, Design, Development, Implementation, Evaluate)	The effectiveness of learning devices based on concept understanding tests has increased the average N-gain of the experimental class with the high category. The implementation of learning in the experimental class at the first to fifth meetings has been carried out in a good category. Teachers and students gave a positive response to the learning tools applied in the classroom.
Rofiqah (2017)	The Effect of Structured Independent Assignments on Physics Learning Outcomes at Madrasah Tsanawiyah Nurul Huda	The method in this study is an experiment with a <i>quasi-experimental design</i> .	The results showed that there were differences in the learning outcomes of students who were given structured independent assignments and those who were not given structured independent assignments with the calculation results obtained that the value of $Z_{hit} = 4.01$ was not between -1.96 and 1.96 so that H_0 was rejected and H_a was accepted. The scores for physics learning outcomes using the method of giving structured independent assignments were higher than those who were not given structured independent assignments, namely the average value of the experimental class was 73.69, the variance was 122.59 and the standard deviation was 11.07. While the average value of the control class is 63.90, the variance is 74.34 and the standard deviation is 8.62.

Author and Year	Title	Research design	Research result
Latifah (2020)	Development of Physics e-Module to Improve Students' Critical Thinking Ability	This type of research is development which refers to the development model	The learning outcomes at the stage of applying the pretest score obtained an average value of 33.19 and the posttest value obtained an average of 73.47. An increase in students' critical thinking skills obtained an N-gain of 0.602 including the moderate improvement category. Thus, the Physics e-module developed is categorized as good and feasible to be used as an alternative to physics teaching materials for class X SMA
Puspitasari (2019)	Application of Physics Learning Media Using Print Modules and Electronic Modules for High School Students	The research method used is literature study	modules can also be effective for improving student learning outcomes. While the use of electronic modules is very effective for increasing student learning motivation, besides that it is also effective for improving student learning outcomes, as well as critical thinking skills.
Fitri (2015)	Development of Discovery-Inquiry Based Modules for Physics of Class XII High School Semester 2	The research method used is the Research and Development method.	From the results of the expert validation test, the results were grouped into 3, namely the assessment of media experts by 81%, subject matter experts by 83.6%, and professional teacher validation by 90%. The implementation of the module at SMAN 9 Jakarta shows that the module has been able to increase students' cognitive scores with an increase of 10.23 points. Based on the results of the study it can be concluded that the module developed which is based on Discovery Inquiry has met the module criteria so that it can be used in independent learning.

Author and Year	Title	Research design	Research result
Aji (2018)	Development of Independent Learning Media Based on the Whatsapp Application to Increase Motivation and Learning Outcomes of Physics for Class Xi Sma N 1 Purwokerto	This research is a Research and Development (R&D) study with 4D Models (Define, Design, Develop, Disseminate).	The results of this study were (1) the self-learning media based on the WhatsApp service application that was developed was deemed feasible by the validator's assessment in all aspects included in the very good category with an average score of 124; (2) self-learning media based on the WhatsApp service application can be used to increase student motivation and learning outcomes; (3) increasing student motivation after implementing self-learning media based on the WhatsApp service application
Pulungan (2013)	The Influence of Problem Based Learning Models Based on Character Education on Character Changes and Ability to Solve Physics Problems	this research is using experimental method	The results of the study show that there is an influence of the problem-based learning model based on character education on character changes and the ability to solve physics problems. This means that there is a relationship between the influence of changes in honest, disciplined, persistent and responsible behavior of students who are given learning with the Problem Based Learning model based on character education, students who are given learning with the Problem Based Learning model without character education based and students who are given conventional learning models on ability to solve students' physics problems
Mardiansyah (2013)	Making ICT-Based Physics Modules to Integrate Character Education Values in Student Learning at Sman 10 Padang Class X Semester 1	This type of research is Research and Development (R&D)	Based on data analysis, there are four results of this study. First, the module has a high validation value of 87. Second, the design of this module has a home menu, competencies, learning evaluations, and downloads

Author and Year	Title	Research design	Research result
Diana (2015)	Development of Character Education Based Physics Learning Devices with a Problem Based Instruction Model	This research is a development research using the 4D model	which are equipped with videos and animations and are packaged on a CD. Third, the value of the practicality of the module according to teachers and students is 85.46 and 87.60. Fourth, this module is effective in improving learning outcomes and developing student character values. The results show that physics teaching materials based on character education with Problem Based Model instructions are very valid, very practical and very effective for improving character
Angela (2013)	Development of Textbooks Filled with Character Values in the Material of Effort and Momentum for Physics Learning for Xi High School Class Students	This research is a development research	The results of this study: the first learning book that contains very valid character values with an average value of 92.05. Second, the design of this learning book includes: cover, main page, learning guide, concept maps, competency standards, content of learning materials, supporting information, sample questions, homework, evaluation, answer keys, feedback and references. Third, the practicum results are very practical with an average score of 92.88 for the teacher's conception and 91.13 for the student's conception. The results of the effectiveness of the cognitive domain increased by 21.75, the average effective domain was 89.11 and the average psychomotor domain was 89.13.
Wulandari (2020)	Character-Based Physics E-module Development with a Scientific Approach	This type of research is research and development (Research and Development.)	Based on data from the validation results of material experts, media experts and the responses of educators and students, it is shown that this e-module teaching

Author and Year	Title	Research design	Research result
Misbah et al (2018)	Development of 5M-based basic physics practicum instructions to train science process skills and wasaka character	This research is research and development using a modified 4D model	material is very suitable for use in learning straight motion material for class X SMA/MA. Based on the results of data analysis, it was found that the Basic Physics I practicum instructions based on 5M training KPS and Wasaka characters were categorized as very valid.

Based on the results in the table above, student learning independence is a reflection of a creative attitude, freedom of action and responsibility which is characterized by the existence of learning initiatives and the desire to gain new experiences. From the results of this study it can be seen that independence is very important for students. Student independence can be increased by providing opportunities for students, creating a comfortable atmosphere for learning activities for students, paying attention to students' conditions, and providing fun material.

This research is important to direct further research by identifying relevant reference sources. The implication of this research is that it can provide the latest information for researchers who want to examine students' abilities which can be seen from independent character. With this research, it is hoped that future researchers can collect and analyze relevant articles systematically. The novelty in this case is learning to provide an overview of the character that can be obtained by students after examining how important it is to be independent in physics learning so that teachers can improve students' independent character.

CONCLUSION

Based on the results that have been obtained from the literature study above, it is found that the character is independent in learning physics. This is seen based on the level of student nationalism produced which prioritizes general group interests compared to personal interests. This research is also on the topic of independent study in physics learning and there has been no previous research that has conducted literature studies. Based on this, the researcher recommends further research in order to be able to conduct further research on the topic of independent study of physics learning.

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