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Developing Environmental Integration Teaching Materials to Improve Cognitive Flexi-bility

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***Abstract*---**This study aims to develop an innovative model of environmental integration learning in boosting cognitive flexibility. The research method used a Research & Development with the Dick and Carey development model. The sampling technique uses random sampling techniques. There are two groups of teachers. Data analysis used descriptive statistics and t-test to verify product differences and effectiveness. The output is in the form of teaching materials for environmental education learning strategies. Results showed that there was a very significant difference between the post-pre-test treatment score 19.68, higher than the post-pre-test score of the control 9,12. There was an increase in teachers' cognitive flexibility about environmental integration learning effectively and significantly after reading the teaching materials.

***Keywords*---**cognitive flexibility, environmental education, integration, learning strategies, teaching materials.

Introduction

Special Education Teachers are teachers who are professionals in the field of knowledge of students with special needs. Teachers become the foundation for the future by knowing / skills/attitudes related to environmental problems such as the use of environmentally friendly products. Teachers must have a more advanced mindset in making decisions about environ-mentally friendly consumption and teach students about environmentally friendly products. In this case, the teacher must be an agent of change (agent of change). Therefore, it is

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neces-sary to ensure that teachers or prospective teachers know/skills/attitudes related to environ-mental problems (Ionescu, 2012; Ritter et al., 2012).

Teachers' knowledge in mastering the concept of environmental education will greatly as-sist teachers in integrating environmental education principles in designing learning kits. Learning that is integrated with the values of environmental education is a sustainable devel-opment education program that will have a major impact on improving the world of education globally. Therefore, teachers' knowledge about environmental education is needed to make an integrated learning environment. Teachers must be able to apply their knowledge in solving environmental problems in a structured manner based on their cognitive flexibility. Cognitive flexibility is the human abil-ity to adapt the cognitive processing strategies to face new and unexpected conditions in the environment (Cañas et al., 2003). This definition involves three im-portant concept characteristics. Firstly, Cognitive Flexibility is an ability that could imply a process of learning, that is, it could be acquired with experience. Secondly, Cognitive Flexi-bility involves the adaptation of cognitive processing strategies. A strategy, in the context of this definition, is a sequence of operations that search through a problem space (Payne et al., 1993). So, it can be concluded that Cognitive flexibility is the ability to think about things in different ways. That is, the learning process should ideally be able to improve the cognitive flexibility of teachers. The principle of cognitive flexibility refers to the working system of the human brain, wherein the human brain all the information obtained is stored in memory which can then be recalled when needed to be rebuilt into new knowledge under different conditions (Jones, 1997; Cloonan & Fingeret, 2020).

Data was obtained that teachers of the Special Education School at SLBN 7 Jakarta in making learning kits were following procedures but had not yet integrated the environment. Based on a preliminary study through observation, interview, and document review tech-niques from 3 special school teachers, namely the SLB Angkasa, SLBN 7, and SLB Budi Daya teachers, data was obtained that only 2 schools, namely SLB Angkasa and SLB Budi Daya, made learning kits according to the procedure but were made without integrating en-vironmental material and there are even schools that do not make learning kits because the teacher uses learning devices that are based on the achievement of curriculum goals while the learning materials are only based on the outline of the teaching program (Lewalter, 2003; Neroni et al., 2019).

Until now, special education teachers have faced difficulties due to the scarcity of teach-ing materials that can be used as learning resources for integrated learning environments. Even though teaching materials are available, the problem often faced by teachers in learning activi-ties is choosing, determining, and utilizing appropriate learning materials or teaching materials to help students achieve competence. This is because, in the curriculum or syllabus, teaching material is only written in an outline. It is the teacher's job to describe the material so that it becomes complete teaching material even though the learning objectives will be achieved if supported by learning kits (Nasional, 2006). Based on this, it is necessary to compile a guide on teaching materials for Environmental Education Learning Strategies as a reference for teachers in understanding, planning, imple-menting, and evaluating the results of environmental integrated learning. Thus,

the purpose of this study is to develop teaching materials for Environmental Education Learning Strategies in boosting cognitive flexibility (Carleton-Hug & Hug, 2010; Frantz & Mayer, 2014).

Materials and Method

This study used the Research and Development method from Gall et al. (1996), and the instructional development (Dick et al., 2009). The steps for developing an instructional package include:

- Identifying instructional needs and write general instructional goals. The stage of identi-fying learning needs begins with reference to the ability of knowledge about environmen-tal education learning strategies, which is very much related to the development of in-structional packages. The general instructional objectives obtained are: The teacher under-stands the learning strategy of environmental education.
- Conducting instructional analysis, is a process of describing general competencies into special competencies arranged logically and systematically by looking at and considering the learning objectives to be achieved.
- Identifying the teacher's initial abilities and knowledge of context of education for sus-tainable development. This step is intended to determine the behavior that has been and has not been mastered by the teacher before participating in the learning process. This step is important because it has implications for the preparation of learning materials and learning systems.
- Writing specific instructional goals based on general instructional objectives that are for-mulated with clear, definite and measurable sentences.
- Developing a benchmark reference test based on specific instructional objectives that have been written, it is necessary to develop a test that is aligned with the measure of ability that must be achieved.
- Developing learning strategies in textbooks, that are using strategies in the form of con-tinuous learning so that the conditions and results are in accordance with the needs in the field.
- Developing instructional materials, related to the model to be developed, namely the En-vironmental Education Learning Strategies textbook.
- Arranging designs and implement formative evaluations, namely a team of environmental education experts at the State University of Jakarta and a field test, namely the SLBN 7 Jakarta teachers, totaling fifty-four teachers consisting of two selected teacher groups, namely the treatment group consisting of twenty-seven teachers is a group of teachers read the “Environmental Education Learning Strategies (SPPLH) textbook” and the con-trol group consisted of 27 teachers, namely the group of teachers who did not read the “Environmental Education Learning Strategies (SPPLH) textbook”.

Results

Needs analysis results

The steps for developing SPPLH teaching materials are the planning stage, the develop-ment stage and the Field Trial stage. First, the planning stage, namely the data collection stage obtained through the results of observations, interviews, and document review conducted on 3 special school teacher respondents, namely 1 Asih Budi special school teacher, 1 Angkasa special school teacher and 1 cultivation special school teacher in East Jakarta. namely to ad-dress the needs of special education teacher's in implementing learning that integrated the environment, the teacher needs to master the knowledge of the concept of environment edu-cation but apparently the teacher has minimal knowledge about the concept of environment education, the teacher only understands the knowledge of the concept of environment educa-tion as limited as education related to the environment. By not understanding the concept of environment education, the teacher does not integrate the concept of education for sustaina-ble development in learning programs and applies sustainable learning to mentally disabled students and even teachers who do not make learning kits (Caves & Bradburd, 1988; Perry, 1989).

The available environmental integrated textbooks are still very limited both in terms of quantity and quality. The substance of the material discussed in the teaching materials is less fully presented which contains values that are integrated with the objectives of environmental education. The framework for developing teaching materials is expected to be able to describe a syntax of textbooks that can encourage and help teachers to interact and learn inde-pendently (self-instructional). The solution that needs to be done is to provide information about the knowledge of en-vironmental education concepts in the form of "SPPLH books" so that teachers can make en-vironmentally integrated learning tools so that teachers can implement sustainable learning (Kokorina et al., 2021; Azzajjad et al., 2021).

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mentally disabled students and even teachers who do not make learning kits (Udu et al., 2016; Kanca et al., 2020).

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The results of the material analysis that have been carried out are then used as the basis for developing learning materials about SPPLH. The development of the material begins with formulating Core Competencies, Basic Competencies, and Indicators, which are then trans-lated into several topics of material summary. The design of competency standards, basic competencies, the achievement of learning outcomes, and the main material is outlined in the syllabus of SPPLH teaching materials. The syllabus of SPPLH teaching materials can be seen in the table below: Syllabus of Teaching Materials for Environmental Education Learning Strategies (SPPLH)

Desain and development product

- Draft 1
  Draft 1 is the first stage in the development of SPPLH teaching materials. Draft I was tested by expert testing. The products in draft 1 consist of a brief description, purpose of teaching materials, subject matter and sub-topics, teaching material media, steps for teaching materials, material description, summary, and reference. There are 3 expert respondents, namely: 1) instructional design expert, 2) linguist; and 3). material expert. 3 expert respondents were selected because they have sufficient abilities according to their respective fields, namely 1). Instructional Design experts are Prof. Yufiarti, Professor of Postgraduate Degree, State University of Jakarta, 2). The linguist is Dr. Reni Nur Eriyani, M.Pd, namely Lecturer in Indonesian Language, Faculty of Language and Arts, Ja-karta State University, 3). Environmental Education Material Expert is Prof. Dr. Nadiroh, M.Pd, Professor of Postgraduate Degree, State University of Jakarta. Instructional Design Expert Comments and Suggestions: The cover and page designs are made more attractive, the text layout is improved, and the text is compared to illustrations. Comments and Suggestions from Experts in Environmental Education Learning: Allow teachers to learn first before providing environmental education learning. The learning method is adapted to the characteristics of the teacher in providing an integrated learning environ-ment. The cover design has been improved to make it even more attractive. Linguist Comments and Suggestions: In general, it can be concluded, that overally the SPPLH teaching materials are quite good and

can be said to be worthy of being an integrated learning environment model for special education teachers.

- Draft 2

  Draft 2 is the second stage in the development of SPPLH teaching materials and the re-sults of the improvements according to expert advice that is acceptable to researchers. The products in draft 2 consists of a brief description, purpose of teaching materials, subject mat-ter and sub-topics, teaching material media, steps for teaching materials, material description, summary, and reference.

  Draft 2 was tested by a one-to-one test. The one-to-one test was carried out on 3 teachers representing the target population, namely the Asih Budi I SLB, Kembar Karya II SLB, and Karya Mandiri SLB teachers. Following are suggestions after the one-to-one test is carried out.

  - Respondent 1: In general, respondent 1 thought that the SPPLH teaching materials were good and following the needs in the field.
  - Respondent 2: In general, respondent 2 commented that the SPPLH teaching materials were easy to understand, consistent, and appropriate to the material.
  - Respondent 3: Based on respondent 3's comments, it is still necessary to make improve-ments to this teaching material. The size of the letters and the delivery of teaching materials are appropriate. However, the principles of learning and the preparation of learning kits need to be improved as well. Cover and numbering should also be improved.

  In general, the conclusions and suggestions on the one to one test are that the teaching materials are good and following the needs in the field but must be fixed on the cover and numbering.

  Based on input from the one to one test, the product was revised again before the small group test was carried out.

- Draft 3

  Draft 3 is the third stage in the development of SPPLH teaching materials and the results of the improvements according to the suggestions of the one to one test respondents that can be accepted by researchers. The products in draft 3 consists of a brief description, purpose of teaching materials, subject matter and sub-topics, teaching material media, steps for teaching materials, material description, summary, and reference.

  Draft 3 is then carried out by a small group test. The small group test consisted of 10 spe-cial school teachers in East Jakarta who represented the actual target population and was not included in the one to one test respondents, namely SLB Sinar Kasih as many as 3 teachers, SLB Mini Bakti as many as 1 person, SLB Karya Guna as many as 3 teachers and SLB Dian Kahuripan as many as 3 teachers. A small group test is conducted to test the legibility of the module product. Following are suggestions after the small group test. The results of the small group trial are as follows:

  - Most of the respondents said the teaching materials were good enough, easy to under-stand and understand, very helpful for special school teachers.
  - Most of the respondents suggested adding a comparison between illustrations and writing to provide easier understanding to the teacher.

- Based on the input from the small group test, the product was revised again before the field test was carried out which was the last trial in this study.

- Draft 4
  Draft 4 is the last stage in the development of SPPLH teaching materials and the results of the improvements according to suggestions from small group test respondents that can be accepted by researchers. The products in draft 4 consists of a brief description, purpose of teaching materials, subject matter and sub-topics, teaching material media, steps for teaching materials, material description, summary, and reference.
  Then an extensive field test was carried out on 54 SLBN 7 East Jakarta teachers who represented the actual target population and were not included in the one to one test re-spondents and the small group test. Field testing is the implementation of SPPLH teaching material products as learning materials.

Final product

The final product results were obtained after revised draft 4. The final product results are in the form of teaching material products entitled Teaching Materials for Environmental Ed-ucation Learning Strategies (SPPLH) which consists of a Brief Description, Purpose of Teaching Materials, Subjects and Sub-Subjects, Media Teaching Materials, Steps of Teaching Materials, Description of Materials, Summary, and Reference.

Compilation and development of product

The next step is to develop textbook material so that a draft textbook is produced. The development of material is supported by several relevant sourcebooks as reference material to explain important concepts related to SPPLH. While environmental phenomena that are often found around the teacher's environment are used as a learning resource so that it is easier to increase teacher activities regarding environmental education in understanding the concepts given. The principles of material preparation refer to the design of teaching materials designed for research purposes.

Product feasibility

The results of product development are subjected to theoretical and empirical feasibility tests. The process of feasibility testing was carried out by a team of environmental education experts and field testing of teacher respondents. After going through a series of due diligence processes, the product results of this development product were determined to be in the form of an "SPPLH Book". The development of the SPPLH book to solve the problems faced by Special Education teachers, namely the problem of knowledge about Environmental education learning strate-gies. Through this SPPLH book, it is hoped that it will become an alternative reference for teachers in increasing the cognitive flexibility of teachers about SPPLH.

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Fill in the "book of SPPLH"

The contents of this product include Material (1). Definition of learning strategies, materi-al (2) types of learning strategies, material (3) components of learning strategies, material (4) aspects of learning strategies, material (5) learning strategies for environmental education, material (6) methods of learning strategies, material (7) Evaluation of Learning Procedure Components.

Characteristics of " book of SPPLH

- This book of SPPLH was designed and developed concerning the characteristics of the ability of special education teachers related to knowledge of SPPLH.
- The book of SPPLH was designed and developed about the specific competencies to be achieved by the teacher. These competencies are structured systematically starting from explaining concepts definition of learning strategies, types of learning strategies, compo-nents of learning strategies, aspects of learning strategies, learning strategies for environmental education, methods of learning strategies, and Evaluation of Learning Procedure Components.
- The goal of the SPPLH book is a special education teacher who provides learning to spe-cial needs students.
- This book of SPPLH was designed and equipped with independent tasks.

The design of an SPPLH book refers to the purpose of environmental education which emphasizes the process of recognizing values and explaining concepts to develop skills, atti-tudes needed to understand and appreciate the reciprocal relationships between humans and the biophysical and social environment. Thus, environmental education that is integrated with the SPPLH book aims to increase the cognitive flexibility of teachers about environmental education. Teacher activities in comprehensive environmental education must be supported by knowledge about Environmental Education Learning Strategy. The Environmental Education Learning Strategy system between the operational, organizational, legal, financing, and edu-cation for sustainable development education aspects is interrelated, cannot stand alone. The Environmental Education Learning Strategy is integral and integrated into a sequence with a continuous sequence, namely: definition of learning strategies, types of learning strate-gies, components of learning strategies, aspects of learning strategies, learning strategies for

environmental education, methods of learning strategies, and Evaluation of Learning Proce-dure Components.

Referring to the definition, components, aspects of the Environmental Education Learn-ing Strategy that will be developed, the syllabus on SPPLH was developed. At the stage of preparing the syllabus and developing material teaching, the characteristics of the teacher as the user of the product produced are very important considerations. The development of material teaching of Environmental Education Learning Strategy is tailored to the characteristics of the local teacher, while the problem presented is based on en-vironmental phenomena that are close and known to the teacher. Environmental phenomena such as damage and changes in the environment, as well as environmental pollution are envi-ronmental problems used as learning resources in developing material teaching Environmental Education Learning Strategy.

The design of the book of SPPLH illustrates that Environmental Education Learning Strategy as a learning resource is an elaboration of a contextual approach that explains the re-lationship between the knowledge it has and the facts found in everyday life. While the teacher's socio-cultural conditions are the basis of reference for developing learning package materials that are based on local wisdom. Thus, the resulting material teaching will provide opportunities for local teachers to construct their cognitive flexibility based on facts and in-formation obtained so that the material studied becomes more meaningful. The framework of the SPPLH book produced consists of; *introduction, environmental ex-ploration, strengthening concepts, digging information, ecological activities, learning problem solving, developing concepts, environmental messages, and closing sections that cover material summaries and practice questions*.

- *Title of the topic*, containing the title of the topic and presented facts and phenomena about environmental education learning strategy. The presentation of facts and phenome-na aims to deliver and attract the attention of the teacher in studying the topic.
- *Environmental Exploration*, presents several facts and phenomena in the environment. The teacher makes observations, through this activity is expected to improve cognitive flexi-bility about environmental education.
- *Strengthening the concept*, explaining the strengthening of the description of the material, and explaining important concepts according to the topic to be achieved. So that it can help teachers understand the material that has been explained.
- *Exploring Information*, contains explanations and descriptions of material that are wider with the topic and objectives to be achieved. This section is accompanied by images that can explain the material described. This section is expected to be a source of information to solve the problem of environmental education.
- *Ecosystem Activities*, which contain activities that can help teachers understand concepts and theories. The development of concepts in this section contains questions to master the understanding of the concepts that have been learned.
- *Problem Solving Learning*, contains learning activities of teachers who can produce solu-tions regarding environmental education.

- *Concept Development*, contains the question of the teacher's understanding of the book of SPPLH development being studied.
- *Moral Message*, containing moral messages that teachers should have to improve educa-tion for sustainable development which is an economic and environmentally friendly val-ue.
- *Summary*, contains concepts that must be understood in the presentation that has been presented.
- *Evaluation*, aims to determine the understanding of the teacher after studying the SPPLH book that has been presented.

The parts contained in the framework of the SPPLH book describe an activity that must be carried out when the teacher studies the book. So that it is expected to help teachers un-derstand the material presented on each topic of discussion, forming teachers to be inde-pendent in learning and be able to improve cognitive flexibility about environmental educa-tion learning strategies.

Discussion

The available environmental education teaching materials are still very limited in terms of both quantity and quality. The substance of the material discussed in the teaching materials is less fully presented which values are integrated with the objectives of environmental educa-tion. This SPPLH textbook contains information about teacher knowledge about environmental education learning strategies involving teachers to actively learn in building cognitive flexibil-ity through the principles and characteristics of problem-based learning. Material development not only emphasizes the sense of mastery, but changes attitudes, mindsets, and behavior of teachers to be more concerned about the environment, and able to apply the principles of en-vironmental sustainability. In this case, the teacher is directed to understand the education for sustainable development and its impact on the environment by introducing environmental conditions, observing environmental problems and problems, and the right to overcome exist-ing and possible environmental problems.

The framework for developing books of SPPLH, which are compiled, is expected to be able to describe a syntax of teaching materials that can encourage and assist special education teachers to interact and learn independently. The SPPLH book is designed in a learning package model that is based on environmental education goals and utilizes the biophysical environment, as well as socio-cultural as a learn-ing resource. The design of the SPPLH book describes a learning activity with a definition, types, and resources of an Environmental Education Learning Strategy which begins with the exploration of environmental phenomena, digging up information about understanding, types, and sources of SPPLH, and develop the ability to solve problems of environmental education. This helps the teacher to gain understanding and knowledge about the Environmental Educa-tion Learning Strategies they are learning to be used in solving the problems of the Environ-mental Education Learning Strategies.

The findings of this study contain a framework for instructional packages of education for sustainable development that describe a discovery approach that guides teachers to carry out exploration activities on the phenomenon of

ecosystem problems in the environment, so they can find important concepts based on their findings. Following the research findings of Balim (2009), it is proven that discovery approaches can improve academic abilities, shape scientific attitudes, and increase cognitive and affective level retention. So, the knowledge gained through the learning process with discovery methods will last a long time and have a better transfer effect. But Suduc et al.(2014), identified teacher opinions about education for sus-tainable development in the current Romanian education system, and to evaluate teacher needs, two methods were used: (1) semi-structured interviews and (2) questionnaires.
While the results of De Graff & Kolmos (2003) indicate that the instructional package developed contains information about education for sustainable development that can involve teachers to actively learn in constructing knowledge through the principles and characteristics of problem-based learning. So, the instructional package of education for sustainable devel-opment was developed by De Graff through problem-based learning while in this study mate-rial teaching developed through an environmental approach.

The product in this study is a textbook SPPLH. The products read by the teacher about the Environmental Education learning strategy in a textbook model based on an objective en-vironmental education approach and take advantage of the biophysical, socio-cultural envi-ronment and learning resources. Instructional design of knowledge and learning activities for environmental education in the concept of approach, environmental education starts with an exploration of environmental phenomena, gathering information about learning strategies for environmental education, and developing the ability to solve problems related to the envi-ronment. This helps people to gain understanding and cognitive flexibility about the learning strategies of environmental education to the teacher which they learn later, especially envi-ronmental issues.

According to the results of the Rhedana (2012), the problem-based learning model can encourage critical and creative thinking in solving problems it faces. This opinion is in line with the results of research by Suhirman (2012) which states that problem-based learning can improve the ability to solve environmental problems. The problem-solving process that is car-ried out can develop individual abilities and provide freedom in the learning process, thus providing sufficient opportunities for teachers to be able to develop their talents and abilities. According to Arends (2004), that the principles of learning knowledge about environmental education are in line with the view of constructivism, which explains that:

- Knowledge is built by oneself both personally and socially.
- Knowledge is not transferred, except only with student activity themselves to reason.
- A person is actively constructing continuously, to gain an understanding of a concept.
- Mentor is only a facilitator who helps teachers so that knowledge formation processes can occur easily.

Whereas Kankovskaya (2016), research analyzed state education standards and university education programs and identified prob-lems in applying the concept of

sustainable development in Russian higher education, and formulated principles for national innovation systems based on the concept of sustainability. With this SPPLH book, the teacher not only reads, records, and repeats what is learned, but encourages activity and thought process. Referring to the results of the study, the SPPLH book has motivated teachers to actively learn by building their understanding by exploring environmental phenomena and gathering information to get answers to solve the environmen-tal problems presented. According to Mauffette et al. (2017), providing learning experiences through problem-based learning can foster attraction to the material being studied. Actuality and contextual problems presented can encourage one's interest in a subject (subject matter). The same conclusion is also expressed from the results of Akınoğlu & Tandoğan (2007), that problem-based learning can develop a positive attitude towards science learning so that it can improve learning outcomes. Also, the results of the study explain that students who learn through problem-solving will get practical knowledge (applied) to be applied in daily life.

The results of this research of the book of SPPLH that are used by teachers can familiarize teachers to learn independently so that they can increase the teacher's cognitive flexibility. The habit of reading teaching books can be transmitted to students through the making of in-teresting teaching materials so that they can make changes to students because the teacher is the agent of change. This is in line with Sánchez's research Sanchez (2004), which states that classical conditioning is a type of learning in which an organism learns to associate or associ-ate stimuli. In classical conditioning, neutral stimuli (such as seeing someone) are associated with meaningful stimuli (such as food) and give rise to the capacity to issue the same capaci-ty.

Research on the development of SPPLH to improve the cognitive flexibility of special education teachers about integrated learning environments is research that has not been done by other researchers. There are many studies on education for sustainable development such as Sritaratorn & Sombunsukho (2011), developed computer instructional packages for multimedia programs that are quite well used for self-learning in students; Kitamura (2014), developed a new mode of safety education, an initiative that represented one of the important efforts in designing mo-bility for the future of Japan; Danilane & Marzano (2014), described new consumer educa-tional content, in accordance with the principles of sustainable development, since basic edu-cation; Nasibulina (2015), concluded the positive role of environmental ethics in the creation and development of education for sustainable development in the Bikal region of Russia; Suryawanshia Suryawanshi & Narkhede (2015), examined the obstacles to the application of Green ICT in Indian higher education institutions due to the lack of motivation and ration-al implementation of the implementers of green policies among implementers; Hoang & Kato (2016), improved student knowledge about solid waste management workshops through en-vironmental education in elementary school students in Da Nang city, Vietnam; Meilinda et al. (2017), concluded that students' environmental literacy at Adiwiyata Green School in Sura-karta was categorized as low; Alexandar & Poyyamoli (2014) concluded that environmental education for sustainable development is more effective through an active teaching and learning approach; Yaki & Babagana (2018) investigated the Instructional Technology Package (TIP) can improve the performance of secondary

school students in Minna Nigeria; Safo et al. (2013), exam-ined a Computer Assisted Instructional package that could improve the achievement of geo-metric learning in junior secondary students in Minna; Gambari & Yusuf (2014), examines comput-er-based instructional packages that can improve student performance in Physics subjects for high school students in Nigeria; Abidoye (2015) examined multimedia instructional packages that can improve student achievement in Geography subjects for public high school students in Oyostate Nigeria Omiola et al. (2012), examined student performance in Physics subjects that use video learning packages not much better than students taught without use package.

Conclusion

The SPPLH book is designed based on the instructional model design which is based on the material substance as a whole containing the value integrated environment. The SPPLH book can improve the cognitive flexibility of Special Education teachers on Environmental Education Learning Strategies so that improvement in teacher's cognitive flexibility it is ex-pected to improve the quality of Special Education. This research can also add references and advance population and environmental education study programs.

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