

# Implementation of Cognitivism Theory in the Learning Process at Riyadlul Jannah Middle School in the Pandemic Era

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**Abstract.** The COVID-19 pandemic has led to changes in various aspects of life, especially learning. Education that must be carried out online (online) at any level from kindergarten to major academies. Indonesia is one of the countries affected by the virus. Various government policies have been taken as an effort to limit the spread of the virus. Government policies also have an impact on the regulation of learning zones in Indonesia. There was a change in the educational process which was originally tried face-to-face in class after that because of this pandemic so there was an adjustment, namely the educational process was tried online. The emergence of innovation from the teachers also gave color to the educational process during the Covid-19 pandemic. Likewise, the educational process at Riyadlul Jannah Middle School has made adjustments to the technical aspects of teaching and learning activities for students. The research procedure in this paper is for the development of cognitivism education design during a pandemic, on the contrary, the purpose of compiling this post is to describe the ASSURE educational model as an innovative instructional education model and focuses on the use of media in education and has a philosophical approach to cognitivism theory. With the technology-based ASSURE education model in the 21st century in social studies education in class VIII, it can improve students' literacy skills. but in general the theory of cognitivism is more about how to master the cognitive structure of students, and this is not easy, by mastering the cognitive structure of students, so that social studies lessons are adjusted to the extent of the student's skills.

**Keywords:** *Cognitivism Theory, Learning, Pandemic*

## 1. INTRODUCTION

The change in education patterns due to the Covid-19 virus requires educators and students to be able to carry out teaching and learning activities without face to face. This is in accordance with the Indonesian government's policy of closing direct education, starting at the end of March 2020. This closure aims to reduce the transmission rate of the Covid-19 virus. The results of Nafisah et al's research report that school closures are efficient in reducing the peak of influenza outbreaks by an average of 29, 7% and delayed the peak by an average of 11 days. The indications and transmission of Covid-19 are similar to influenza, so it is hoped that they will be able to reduce the peak of the Covid-19 outbreak (Rusdiana et al. 2020).

Education without face-to-face / online requires the encouragement of technological media. This is in line with the Industrial Revolution 4.0, which demands the use of digital technology for the learning aspect. Online education, not only modules that are transferred via internet media, not only

assignments and questions sent via social media applications. Online education must be planned, implemented and evaluated in the same way as learning that occurs in the classroom. The online learning module must always think about the theory of cognitivism that makes students function actively. The modules presented in the form of problem solving are in line with cognitive theory.

Theory of Learning and Education in order to improve the skills of educators, they must have a solid empirical basis to support their profession as teachers. The reality is that the curriculum that has been taught in secondary schools is not able to prepare students to enter major academies. After that, the lack of explanation will mean the relevance of learning to overcome social and cultural problems, and how the form of teaching for students with various intellectual skills (Nurhadi & Sunarso, 2018). Jerome S. Bruner, a leading researcher, shares some reflections on the need for educational theory to support the educational process in the classroom, and some instant

examples to prepare teachers for professional preparation.

Based on the research of Jerome S. Bruner, explained that in terms of psychology and from the design of learning curriculum very little is discussed about educational theory. Educational theories that have existed so far have only focused on theoretical interests. For example, when discussing the theory of growth, a child is not taught its influence on social challenges and what real experiences children will experience when they are in the community. There are many other examples, how an educational theory does not take into account the social aspect of the murid, and this is a form of intellectual stupidity and has no moral responsibility (Pahliwandari, 2017).

From the case above, we realize that an educational theory should also involve a practice to guide a student on how students gain knowledge and skills, life ideas, and knowledge of the surrounding culture. For this reason, it is necessary to have descriptions and comments related to educational theory. To be more specific and focused, this paper will only describe and explain one of several existing educational theories, namely the Cognitivistic Theory of Education. And from this description, it is hoped that it will be able to share a complete description and can be applied in the educational process. Armed with a complete description of the educational theory that is used as a basic description in education, it is hoped that students can receive the education that we want to convey properly (Nugroho, 2015).

The concept of working memory is motivated by the concept of long-term memory (Atkinson & Shiffrin, 1968), which is a structure for storing data before being forwarded to long-term memory. And this concept was later developed by (Baddeley & Hitch, 1974), the working memory model for Baddeley and Hitch is a system with subcomponents that not only store data but also process it so that some verbal data and visual data can be stored and integrated. Cognitive load theory for Chandler and Sellar reported that working memory capacity is limited to selectively perceive and process incoming sensory information.

According to Sweller, van Merriënboer, and (Sweller et al., 1998) there are 3 types of cognitive load: 1) intrinsic cognitive load, this cognitive load is established throughout the interaction between the character of the module being studied and the ability of the learner; 2) extraneous cognitive load, caused by factors that are not meaningful to the module to be studied, such as presentation procedures or activities that divide attention between various data sources. 3) close cognitive load (germane cognitive load), this cognitive load

increases in education because it is related to cognitive construction processes (schematic acquisition and automation)

Intrinsic cognitive load cannot be manipulated because it has become the personality of the interactivity of the elements in the module so that this intrinsic cognitive load is always constant. Intrinsic cognitive load refers to the load that must be carried by working memory because of the characteristics of the module being studied. Reading mathematics texts definitely demands an intrinsic cognitive load that is different from reading ordinary narrative readings. It continues to increase the level of complexity of a module, until the intrinsic cognitive load continues to increase. Mathematical reading which is generally concise, dense, full of symbols distributes a heavier burden than someone who reads ordinary short story readings.

Extrinsic cognitive load is a cognitive load that can be manipulated. A good method of presenting the module, which is one that does not complicate the description, will reduce the extrinsic cognitive load. The description of a module can be easily generated if there is sufficient prerequisite knowledge that can be retrieved from long-term memory. If this prerequisite knowledge can appear in working memory automatically, then the extrinsic cognitive load will continue to be a minimum. Continues to be a lot of knowledge that can be used automatically, continues to be a minimum of cognitive load on working memory.

Extrinsic cognitive load is an aspect that should be minimized in education. Things that are outside the characteristics of teaching materials, as well as the characteristics of students, should be made as small as possible so that they have an impact on the learning load of students. Loud noises that disrupt the concentration of students, especially the display of PC media with lots of animations can also create an extra burden for students.

German cognitive load is a cognitive load caused by the amount of mental effort given in cognitive processes that are relevant to the description of the module being studied and the process of schema construction (scheme acquisition) of knowledge. German cognitive load has a positive relationship with education because it is the result of providing cognitive resources for schema-building and automation rather than other mental activities. If there is no germane cognitive load, it means that working memory cannot organize, construct, code, elaborate or integrate the modules being studied as knowledge that is stored properly in long-term memory (Nursit, 2015)

## 2. METHOD

This study uses a qualitative method of library research that seeks to examine various literatures and related scientific sources. In the context of developing the design of cognitivism education, on the contrary, the purpose of compiling this post is to describe the ASSURE educational model as an innovative instructional education model and focuses on the use of media in education and has a philosophical approach to cognitivism theory.

## 3. RESULT AND DISCUSSION

Cognitivism education theory emphasizes the learning process rather than the learning outcomes themselves. Learning is more about the interaction of people with their environment, and is continuous throughout their lives, which creates changes in knowledge or behavior. The main identity of cognitivism learning: 1) Emphasizes what is in humans, 2) The importance of the totality rather than the parts, 3) The importance of the cognitive role, 4) The importance of the current situation, 5) The importance of making cognitive structures (Nugroho, 2015)

The nature of learning for the theory of cognitivism is described as a learning activity related to data compilation, perceptual reorganization and internal processes, cognitivism education activities explore the following principles (Nurhadi, 2020)

- Students are not as old people who are easy in their thinking processes, they face cognitive growth through certain stages.
- Preschool and early elementary school age children will be able to learn well, especially if they pay attention to concrete objects
- Active student involvement in learning is very important, because only by activating students can the process of assimilation and accommodation of knowledge and experience take place properly.
- To attract attention and increase retention, it is necessary to relate new experiences or data to the learner's existing cognitive structure
- Description and retention will increase if the lesson modules are structured using certain patterns or logic, from simple to complex
- Learning to master will be more meaningful than learning to memorize
- The existence of individual comparisons on the student's side needs to be observed because this aspect greatly

influences student learning success (Nugroho, 2015)

In its development, there are at least three learning theories that start from this theory of cognitivism, namely: Piaget's growth theory, Bruner's cognitive theory and Ausubel's theory of meaning, all of which formulate that the learning process is interwoven through the following stages:

- Assimilation (adjustment of melting) of the original character possessed by the character of the surrounding area
- Accommodation (eye adjustment to receive clear shadows of different objects)
- Equibellation, the learning process is more determined because our method of controlling the lesson module is not determined by the age of the student

The basis for choosing the ASSURE model is based on several advantages, including the ASSURE model describing systematic and equitable steps regarding the activities that are attempted to design an educational model, the ASSURE model is also instantaneous and can be used to design educational activities, both group and community-based. independent (Likhah et al., 2014)

The stages of education in class VIII of Riyadlul Jannah Middle School, with Educational Design Using the ASSURE Model, there are 6 steps as follows: analyze learner (analyze learning participants), state objectives (formulate educational goals or competencies), select methods, media, and materials (sort out procedures, media and teaching materials), utilize media and materials (use media and teaching materials), require learner participation (increase the position and study participants) and evaluate and revise (calculate and correct) (Marbun, 2021). The first step is analyzing learning participants (student participants) as a significant basis for lecturers to try to find out some things such as their characteristics in terms of learning styles, levels of intelligence, including psychological aspects that affect students. This analysis information will make it easier for teachers to design educational models. The second step is to formulate educational goals based on the ABCD format (audience, behavior, conditions and degree). These four things become meaningful so that the formulation of the objectives is specific and measurable. Lecturers are required to have skills in formulating goals according to the particularities of the subjects given, they are also required to pay attention to the achievement of minimum completeness criteria (KKM). The making of educational goals must be adjusted to the competencies to be achieved, therefore teachers must make them specifically and measurable. The third step is to choose methods, media and teaching

materials. These three things are highly correlated with the objectives set, the synergy of these three things will reflect how education is carried out. In the current and post-covid-19 pandemic conditions that require teachers and students to comply with physical distancing, so that online education procedures are more suitable to be tried with internet media, the entire educational process is carried out.

Utilization of various applications such as zoom, google classroom, team link, cisco webex, broadcast videos, youtube, or other social media can be utilized. Kurniawati launched Heinich's comment saying "if instructional media are to be used effectively, there must be a match between the characteristics of the learner and the content of learning material and its presentation"(Kurniawati, 2017). This sentence explains that the selection of media is very meaningful in order to present teaching materials to students. In order for online education to run efficiently, so that in the selection of strategies, procedures and educational media, it is better to think about the cognitive load possessed by students as informed by Seller et al in the theory of cognitive load. The fourth step is to use technology, media and teaching materials. In this situation, teachers and students are already in the context of educational interaction, when applied in the educational classroom.

If the learning pattern is online, the use of internet-based technology (online or online) becomes the tools to be used in delivering modules or teaching materials. So that the use of technology and media in the delivery of teaching materials can take place properly, it is better to try a preview of the technology to be used. This confirms that the educational process is going well, not only that, it is mandatory to prepare conducive conditions. In the context of online education, the features used are determined to be safe, the internet network is sufficient, and the expertise of teachers and students in using them must also be qualified. The fifth step urges the active participation of students. With the pattern of education using internet-based applications, so that students are required to urge activeness in the educational process. If you try it face-to-face online, for example with the zoom application, cisco webex, etc., the active dimension can clearly be detected with the available features. If you try it on a research basis, the results or progress of the research report become the evaluation standard used.

Active and intense interaction must be formed with the learning system used. In conclusion, the sixth step is to carry out repairs and evaluations. This can be tried throughout the educational process but also at the end of education. The assessment will

definitely be based on the achievement of the goals set, if the goals are achieved properly, so that this educational pattern can be continued and improved. However, if the evaluation results do not meet the standards, then repairs are tried. The point of improvement is not to replace the entire educational design but to carry out revisions in the reconstruction of the educational model as well as the educational process. By carrying out improvements, teachers will have the opportunity to carry out improvements, both regarding modules, module organization, educational patterns and the use of media. All of this aims to produce a quality educational process.

In the implementation session, the design is no longer a concept but the implementation of the educational process. In this session the teacher and student participants in an educational interaction. The teacher is tasked with facilitating teaching and learning activities, on the other hand, students prepare themselves for learning interactions. Ananda explained that education is an interactive bond between teachers and students by using space and time so that there is a distribution of teaching materials that students respond to actively (Ananda & Amiruddin, 2019). At this stage, the entire design structure, both concerning strategies, methods, procedures and educational media are used.

The implementation of the mandatory strategy is properly tested by the teacher, this is influenced by the module that is informed, it is also related to the level of intelligence of the students being taught. The selection of educational procedures considers study materials, classroom atmosphere and the availability of learning aids. This means that the purpose of the procedure is to facilitate the delivery of the module so that it is understood properly. The use of educational methods and media is influenced by the level of student intelligence. By considering the auditory, visual, intellectual and kinesthetic classification of students, it will enable teachers to practice appropriate design. One of the goals of implementing an educational design is to create a plan or blueprint for centralizing educational development.

#### **4. CONCLUSION**

Educational design models for the period and post-covid-19 are essential for teaching and learning activities. Before the teacher presents education, it is mandatory to select and determine the model and design. The selection of educational design models and designs must take into account the peculiarities of the education being taught. The Covid-19 situation requires teachers to choose online education. development of cognitivism education design with ASSURE as an innovative instructional

education model and focuses on the use of media in education. Project-based education, data communication technology (ICT). By implementing the above educational model and design, education has shifted from a teacher center to an online-based student center. By implementing the design and model above, the educational process urges the quality and independence of students in learning.

## REFERENCES

- [1]. Ananda, R., & Amiruddin, A. (2019). *Perencanaan Pembelajaran*.
- [2]. Atkinson, R. C., & Shiffrin, R. M. (1968). Human memory: A proposed system and its control processes. In *Psychology of learning and motivation* (Vol. 2, pp. 89–195). Elsevier.
- [3]. Baddeley, A. D., & Hitch, G. (1974). Working memory. In *Psychology of learning and motivation* (Vol. 8, pp. 47–89). Elsevier.
- [4]. Kurniawati, F. (2017). Penerapan Langkah-langkah Model ASSURE Dalam Pemilihan Media Mata Pelajaran IPA Oleh Guru SD Negeri Kelas Rendah Se-kecamatan Seyegan. *E-Jurnal Skripsi Program Studi Teknologi Pendidikan*, 6(5), 490–500.
- [5]. Likhah, A. D. N., Dakir, A., & Hidayah, N. (2014). Pengaruh Penerapan Model Pembelajaran Assure Terhadap Hasil Belajar IPS. *Jurnal Didaktika Dwija Indria (SOLO) Volume, 2*.
- [6]. Marbun, P. (2021). Disain Pembelajaran Online Pada Era Dan Pasca Covid-19. *CSRID (Computer Science Research and Its Development Journal)*, 12(2), 129. <https://doi.org/10.22303/csrid.12.2.2020.129-142>
- [7]. Nugroho, P. (2015). Pandangan Kognitifisme dan Aplikasinya dalam Pembelajaran Pendidikan Agama Islam Anak Usia Dini. *ThufuLA: Jurnal Inovasi Pendidikan Guru Raudhatul Athfal*, 3(2), 281–304.
- [8]. Nurhadi. (2020). Teori Kognitivisme Serta Aplikasinya Dalam Pembelajaran. *EDISI: Jurnal Edukasi Dan Sains*, 2(1), 13–10. <https://ejournal.stitpn.ac.id/index.php/edisi>
- [9]. Nurhadi, N., & Sunarso, S. (2018). Peran Kiai dalam Membangun Partisipasi Pemilih. *Jurnal Ilmiah Pendidikan Pancasila Dan Kewarganegaraan*, 3(2), 169–175.
- [10]. Nursit, I. (2015). Pembelajaran Matematika Menggunakan Metode Discovery Berdasarkan Teori Beban Kognitif. *JPM: Jurnal Pendidikan Matematika*, 1(1), 42. <https://doi.org/10.33474/jpm.v1i1.403>
- [11]. Pahlwandari, R. (2017). Penerapan Teori Pembelajaran Kognitif dalam Pembelajaran Pendidikan Jasmani dan Kesehatan. *Jurnal Pendidikan Olah Raga*, 5(2), 154–164.
- [12]. Rusdiana, A., Sulhan, M., Arifin, I. Z., & Kamaludin, U. A. (2020). *Penerapan model POE2WE berbasis blended learning google classroom pada pembelajaran masa WFH pandemic Covid-19*.
- [13]. Sweller, J., Van Merriënboer, J. J. G., & Paas, F. G. W. C. (1998). Cognitive architecture and instructional design. *Educational Psychology Review*, 10(3), 251–296.