



Development of Early Childhood Education Theory Modules Literacy-Based: Strategies to Improve Student Cognitive

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Abstract

This research produced a product in the form of a module on early childhood education theory to improve student cognitive. The module designed is a source of literacy for Early Childhood Islamic Education (PIAUD) students. The research that will be carried out using Research & Development (R & D) research for the subjects of this study is 31 PIAUD IAIN Pontianak students consisting of semester 5 in the 2021/2022 academic year. The author collected data from February to April 2022 using interview techniques, observations, and student activities in the PIAUD IAIN Pontianak study program. In addition, to support the data collected, the author also carried out documentation in the form of study program archives and PIAUD IAIN Pontianak student activities. The data analysis that the author did was a sociological analysis analysing observations in the PIAUD IAIN Pontianak study program. This study showed that the modules were declared suitable for use with assessment results from material experts 84.5% and media experts with an average value of 100%.

Keywords: Module Development, Early Childhood Education, Literacy

Abstrak

Penelitian ini menghasilkan produk berupa modul teori pendidikan anak usia dini untuk meningkatkan kognitif mahasiswa. Modul yang dirancang merupakan sumber literasi mahasiswa Pendidikan Islam Anak Usia Dini. Penelitian yang akan dilakukan menggunakan penelitian Research & Development (R & D) untuk subjek dari penelitian ini adalah 31 mahasiswa PIAUD IAIN Pontianak yang terdiri dari semester 5 di tahun pelajaran 2021/2022. Penulis mengumpulkan data dari bulan Februari sampai April 2022 dengan menggunakan teknik wawancara, observasi, dan kegiatan mahasiswa di program studi PIAUD IAIN Pontianak. Selain itu, untuk mendukung data yang dikumpulkan penulis juga melakukan dokumentasi baik berupa arsip prodi maupun kegiatan mahasiswa PIAUD IAIN Pontianak. Analisis data yang penulis lakukan adalah analisis sosiologi dalam menganalisis observasi di program studi PIAUD IAIN Pontianak. Penelitian ini menunjukkan hasil bahwa modul yang dinyatakan layak digunakan dengan hasil penilaian dari ahli materi 84.5% dan ahli media dengan nilai rata-rata 100%.

Kata Kunci: Pengembangan Modul, Pendidikan Anak Usia Dini, Literasi

INTRODUCTION

The Pontianak State Islamic Institute is the only state Islamic higher education institution in West Kalimantan, precisely located in Pontianak City. In it there are various faculties, one of which is the Faculty of Tarbiyah and Teacher Science. There are several study programs in the Faculty of Tarbiyah and Teacher Science including Early Childhood Islamic Education. The Early Childhood Islamic Education study program has basic courses that must be studied and mastered by students, especially courses related to six (6) aspects of early childhood development, namely: religious and moral values, physical-motor, cognitive, language, social-emotional, and art.¹ Juridically, the six aspects of development are listed in the Minister of Education and Culture Number 137 of 2013, therefore, graduates of the Early Childhood Islamic Education study program master at least six (6) aspects of development. The Early Childhood Islamic Education study program must prepare various student educator competency development programs. To answer this need, of course, preliminary data is needed on how the competency map of prospective ECCE teachers who are still studying in higher education is actually.² Field facts show that there are still many PIAUD IAIN Pontianak students who have not mastered the basic theory of early childhood, especially cognitive development. This is certainly a paradox for the PIAUD study program which is designed to produce professional educators in the field of early childhood education.³

If referring to the Minister of Education and Culture Number 3 of 2020 the formulation of attitudes and general knowledge, then Learning Outcomes (CP) or learning Outcomes (LO) where the resultant of the overall learning process taken by a student while studying in the PIAUD IAIN Pontianak study program includes attitudes, knowledge, general skills and specific skills then not achieved. Moreover, cognitive development courses are the scientific basis for prospective teachers who will become actors in the world of early childhood education. It seems that the inability of PIAUD IAIN Pontianak students to master cognitive theory is due to the small number of credits in cognitive development courses while students are also required to master other course materials. In addition, the use of learning resources has not been optimal through various source schemes (resources sharing).

Seeing this, students need to be trained, and developed literacy skills, especially basic and basic literacy called functional literacy. Good functional literacy skills certainly result in the

¹ Daniel R. Lynch dkk., "Beyond the Cognitive: The Affective Domain, Values, and the Achievement of the Vision," *Journal of Professional Issues in Engineering Education and Practice* 135, no. 1 (Januari 2009): 47–56, [https://doi.org/10.1061/\(ASCE\)1052-3928\(2009\)135:1\(47\)](https://doi.org/10.1061/(ASCE)1052-3928(2009)135:1(47)).

² Mary Moloney, "Professional Identity in Early Childhood Care and Education: Perspectives of Pre-School and Infant Teachers," *Irish Educational Studies* 29, no. 2 (Juni 2010): 167–87, <https://doi.org/10.1080/03323311003779068>.

³ Bayu Suratman Bayu, "Manajemen pendidik dan tenaga kependidikan di paud it alhamdulillah yogyakarta," *Atta'dib Jurnal Pendidikan Agama Islam* 1, no. 1 (24 Juni 2020): 34–50, <https://doi.org/10.30863/attadib.v1i1.740>; Aulia Laily Rizqina dan Bayu Suratman, "Manajemen Ekstrakurikuler pada Peserta Didik di PAUD IT Alhamdulillah Yogyakarta," *CAKRAWALA Jurnal Manajemen Kajian Pendidikan Islam & Studi Sosial* 4, no. 1 (2020), <https://doi.org/10.12345/cakrawala.v4i1.214>; Bayu Suratman, "Character Building: Sebuah Catatan Reflektif Tentang Anak Usia Dini di Growing PAUD Inklusi Yogyakarta," *Annual Conference on Islamic Early Childhood Education (ACIECE)* 4 (2020), <https://conference.uin-suka.ac.id/index.php/aciece/article/view/135>.

continuity of students during lectures related to the ability to write, read, understand, and also access various digital information.⁴ Moreover, functional literacy will support the improvement of the quality of students in the academic field. In addition, when the functional literacy competence is high, the higher the competence in various other courses. At this point, the Early Childhood Islamic Education Study Program must create a new culture in student literacy in accepting knowledge. So the hope is that the knowledge transformed in students will be able to change the culture of literacy or student learning culture for the better.⁵

Related to functional literacy the rationale is at least based on student psychology which refers to the main learning theory, namely Kurt Lewin's field theories. Based on field theories, students in learning situations are in a field or psychological arena. Learning situation in the sense of facing a goal to be achieved but always hampered, namely studying teaching materials, then a motive arises to be able to overcome these obstacles, namely by studying these learning materials. If the obstacles have been passed indirectly the learning objectives will be achieved. To increase the strong motives in students to overcome obstacles in cognitive development courses, learning materials must be challenging. Of course, the challenges faced in learning materials make students motivated to overcome them. If referring to Kurt Lewin, then the durability and relevance of understanding PIAUD IAIN Pontianak students in understanding cognitive development theory must have a textbook supporting the process of strengthening cognitive theory in the form of an AUD cognitive development learning module.⁶

For this reason, the development of the AUD cognitive development learning module aims to overcome student barriers in learning directed by students of critical thinking and high-ranking thinking skills. Through the development of cognitive-based learning modules, AUD will cause habits to become a learning style or activity often carried out in a campus environment called habitus. The expected learning habitus through module development will produce cultured habits obtained from the imitation or not of students in an environment that likes to learn. In addition, the hope is that through the AUD cognitive learning module, it will become a learning habitus that students do into spontaneous actions but not mechanistic movements because, in the learning position of PIAUD students, the habitus grows born from certain environmental conditions. So habitus becomes a structure that has been formed and agreed upon by the social conditions of learning in which habitus is

⁴ Elizabeth Birr Moje, "Doing and Teaching Disciplinary Literacy with Adolescent Learners: A Social and Cultural Enterprise," *Harvard Educational Review* 85, no. 2 (1 Juni 2015): 254–78, <https://doi.org/10.17763/0017-8055.85.2.254>.

⁵ Christina Weiland dan Hirokazu Yoshikawa, "Impacts of a Prekindergarten Program on Children's Mathematics, Language, Literacy, Executive Function, and Emotional Skills," *Child Development* 84, no. 6 (November 2013): 2112–30, <https://doi.org/10.1111/cdev.12099>.

⁶ Edwin Creely et al., "Leading Change for Creativity in Schools: Mobilizing Creative Risk-Taking and Productive Failure," *International Journal of Leadership in Education*, 22 September 2021, 1–24, <https://doi.org/10.1080/13603124.2021.1969040>; Leonard S. Momeny dan Gabriel Etzel, "Evaluating Field Theory as a Valid Theoretical Construct to Inform Christian Leadership Praxis," *Christian Education Journal: Research on Educational Ministry* 19, no. 1 (April 2022): 94–113, <https://doi.org/10.1177/0739891321999055>.

produced.⁷ Based on the above presentation, literacy-based cognitive development in Early Childhood Islamic Education students IAIN Pontianak aims to learn the PIAUD study program, students can obtain (process learning), generate (generative learning), or construct (constructivism).

RESEARCH METHODS

The research will be carried out using Research & Development (R & D) research which aims to produce a product in the form of, an AUD cognitive theory learning module for IAIN Pontianak Early Childhood Islamic Education students and will test the effectiveness of the product to be designed. The model used is a 4 D (four D) model developed by Thiagarajan, which has 4 stages in the Research & Development (R & D) research procedure.⁸ The research steps can be seen as shown below:

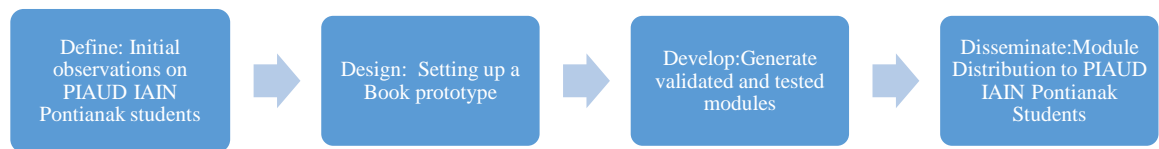


Figure 1. Research steps

The subjects of this study were 31 PIAUD IAIN Pontianak students consisting of semester 5 in the 2021/2022 academic year. The author collected data from February to April 2022 using interview techniques, observations, and student activities in the PIAUD IAIN Pontianak study program. In addition, to support the data collected, the author also carried out documentation in the form of study program archives and PIAUD IAIN Pontianak student activities. The data analysis that the author did was a sociological analysis in analyzing observations in the PIAUD IAIN Pontianak study program. Furthermore, the validation results are calculated using the percentage of feasibility of early childhood education theory modules. For validation values obtained from material experts, media experts, and PIAUD IAIN Pontianak students. One of the reasons the author uses validators from within the PIAUD IAIN Pontianak study program is because in addition to being used for students, the modules designed can be used as policies by the head of the PIAUD study program to support student literacy resources in the future.

⁷ Bayu Suratman dan Mahmud Arif, "Realm of Malay Civilization: Ethnoparenting, Habitus, and Cultural Contestation in Early Childhood Education of Sambas Malay Society," *JSW (Jurnal Sosiologi Walisongo)* 4, no. 2 (31 Oktober 2020): 215–30, <https://doi.org/10.21580/jsw.2020.4.2.6014>.

⁸ Maulidya Ulfah et al., "Pengembangan Buku Ajar Digital Parenting: Strategi Perlindungan Anak Usia Dini," *Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini* 6, no. 3 (22 September 2021): 1416–28, <https://doi.org/10.31004/obsesi.v6i3.1773>.

$$V_a = \frac{Tsa}{Tsh} \times 100\%$$

Keterangan : V_a = skor validasi
 Tsa = total skor empiris dari para ahli
 Tsh = total skor maksimal yang diharapkan

Based on the calculation formula, the questionnaire validity analysis uses a likert scale with positive criteria. Media Expert and Material Expert Validation Score Interval: 81.25% - 100 % (excellent), 62.50% - 81.25 % (good), 43.27% - 62.50 % (sufficient). Testing the validity of data in R&D research is carried out by triangulation, namely the source, method and time so that the data produced will be more valid.⁹ Therefore, the early childhood education theory module was declared applicable by PIAUD IAIN Pontianak students after being validated by the ali and getting a response from the PIAUD IAIN Pontianak study program with a good category and achieving a minimum score of 75%.

RESULTS AND DISCUSSION

The process of making learning module products that the process of making learning module products that will be tested in the PIAUD IAIN Pontianak study program takes 14-21 days. In general, the learning module products designed by this researcher are based on the needs faced by PIAUD students. Moreover, PIAUD students must at least master the theory of early childhood development which is very important for the future careers of PIAUD students both as educators and educational practitioners. Therefore, there must be innovation from the study program to develop related to the theory of early childhood education not only carried out in courses but through independent development as measured by the study program. Therefore, the study program is an agent of change to become one of the facilities for students to get knowledge related to their majors.¹⁰

This research was conducted by applying the 4 steps taken, namely defining, designing, developing and deploying. First, the defining stage (Define) of the early childhood education theory module which is based on the initial and final analysis in the PIAUD IAIN Pontianak study program. The main objective in this stage is to explore the problems that exist in the study program and the obstacles of students so far in finding PIAUD science literature. Next, the author designed a module on early childhood education theory by paying attention to student needs and conformity with courses in the PIAUD study program. Third, the author develops the product that has been designed. However, the author carried out validation to test the feasibility of the early childhood education theory module by material experts and media experts from the PIAUD study program. The material expert named Maria Ulfa, M.Pd is a PIAUD IAIN Pontianak lecturer who teaches early childhood development theory while the media expert in the validator is carried out by the head of the PIAUD study program, Rahnang, M.Pd. As previously mentioned, one of the reasons for validators by the head of the study program is because this product will be used according to student needs while the

⁹ Ulfah et al.

¹⁰ Ahmad Ichsan Yafi Hutagalung dan Bayu Suratman, "Peran Pendiri Sekolah dalam Mengembangkan Kinerja Guru di KB Fun Islamic School Suronegaran Purworejo," *Southeast Asian Journal of Islamic Education* 2, no. 1 (26 Desember 2019): 33–50, <https://doi.org/10.21093/sajie.v2i1.1764>.

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head of the study program is a policy maker and understands the problem situation in the PIAU IAIN Pontianak study program.

At the validation stage, 9 observation items are assessed by experts using a value scale of 1-5. The results of the expert assessment of the revised early childhood education theory module are as shown below:

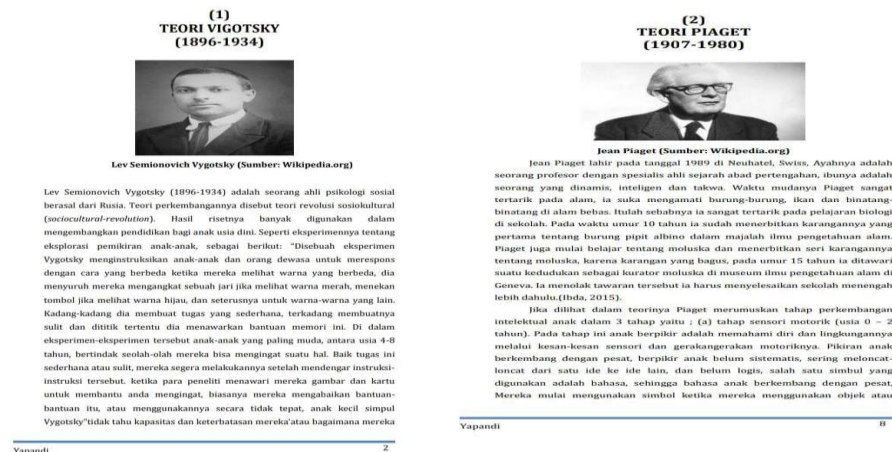


Figure. 2. Example of the display of early childhood education theory modules

The assessment results from material expert validators were obtained with an average value of 84.5% while media experts obtained scores with an average of 100% which means they belong to the category of very valid and very worth using. However, expert validators of PIAUD lecturers provide advice to authors regarding modules with notes to make the display more attractive. The average value consists of each indicator filled in by two validators as in tables 1 and 2.

Table 1. Material Expert Responses to Product Material Content

No.	CRITERIA	SCORE
1.	How to formulate the content of the material in the early childhood education theory module to develop literacy-based student cognitive	4
2.	How is the suitability of the material presented in the development of early childhood development courses	4
3.	Whether the early childhood figures in module development are in accordance with the curriculum used	4
4.	How is the relevance of modules to learning standards in the PIAUD study program	4
5.	Whether the content of the material in the module development is in accordance with the KKNi curriculum	4
6.	How systematically the description of the content of the early childhood education theory material with the material in the lecturer's RPS	4

7.	How is the scope of the material presented in the development of this module	4
8.	Whether the material presented by the module development can motivate students	5
9.	What is the level of difficulty of the language used in the development of the module in measuring the ability of students	5

Table 2. PIAUD Lecturer's Response to the Module

No.	CRITERIA	SCORE
1.	How to formulate the content of the material in the module developed through the theory of early childhood education	5
2.	How is the suitability of the material presented in developing the cognitive of PIAUD students	5
3.	Whether the formulation of ECCE figures in this module presented is in accordance with the RPS KKNi	5
4.	How is the relevance of the Module to the PIAUD association-designed RPS	5
5.	Whether the content of the Material is in accordance with the RPS of the PIAUD Association	5
6.	How systematically the description of the content of the material in early childhood development learning	5
7.	How is the scope of the material presented in the development of modules in the material on early childhood development	5
8.	Whether the material presented module development can improve cognitive and critical thinking of students	5
9.	Whether the difficulty level of the language used in the development of this module can measure the ability of students	5

Table. 3 Average Value of material and media experts

Indicator	Average Value	Category
Eligibility of Materials	87	Excellent
Media Eligibility	100	Excellent

The literacy-based cognitive development learning module product is then applied by the study program to students using the guidelines in the module developed by the author. In addition, based on the results of the cognitive development module product trial data conducted by the author shows that the majority of PIAUD students tested felt interested in the cognitive development module compiled by the author, it can be seen from the data of

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each item. Furthermore, based on the questionnaire given by the author to students, the majority received the presence of a cognitive development module designed by the author and students felt helped when the study program gave students the obligation to memorize the theories of early childhood education of the module. This can be proven by the data that the author has presented in the data on student responses to literacy-based cognitive development modules.

Modules designed by the author are then developed into material for study programs and can be used as textbooks in early childhood development courses. Of course, the process of making the module is based on material and media input by the lecturer of Early Childhood Education IAIN Pontianak. Based on the module from the results of the development carried out by the PIAUD IAIN Pontianak study program, the applied learning module has its own characteristics. The module designed by the researcher contains material in the form of a collection of early childhood education theories and their figures. Of course, the learning module in developing literacy-based cognitive in PIAUD IAIN Pontianak students is considered worthy to be used as teaching material in learning in the study program. Although the material in the module has weaknesses and shortcomings that in the future can be corrected by both the author and other developers. Although it has some shortcomings based on the results of research by experts and education practitioners plus product test data in the field, it can at least provide an overview or information related to literacy-based learning modules. Through the assessment carried out, it can be known that the module can be categorized as feasible based on the results of the development carried out by the PIAUD IAIN Pontianak study program. The literacy-based learning module to improve student cognitive has been validated by the head of the study program and PIAUD lecturers so that researchers believe the module is suitable for use by lecturers and students.

According to the assessment of the PIAUD lecturer, one of the lecturers has a 100% learning module product capian where the figure is a very valid category and very feasible to use. When viewed from the assessment score given in the science learning module, it can be concluded that it is classified as a good category and worthy of use. In addition, literacy-based cognitive development module development products can be applied to PIAUD IAIN Pontianak students. As for the level of difficulty in the module designed by the author, it shows data that the difficulties encountered in the steps in using the module were 6 students (24%) answered disapprovingly and 25 students (76 %) answered disagree. This was strengthened when students answered the item 7 questionnaire related to the ease of instructions in using the module as many as 15 students (49%) answered easily and as many as 16 students (51%) answered very easily.

As for the benefits of the literacy-based cognitive development module, it shows that the data of 9 students (33%) answered usefully and as many as 22 students (68%) answered very useful. So that students feel helped by the presence of learning modules that have been designed. This is reinforced based on data 24 students (75%) answered helpful and as many as 7 students (25%) answered very helpful. After the author provides a questionnaire and analyzes student data where students do not feel difficulties in using the module even though the use practice applied by the head of the PIAUD IAIN Pontianak study program is relatively new. Therefore, when Mr. Rahnang, M.Pd as the head of the teacher study program

gave directions to students who did not feel objections in carrying out activities using modules to measure the extent of students' understanding of the theory of early childhood education.

The use of modules in teaching and learning activities is one way to create learning that prioritizes student activity. In learning using modules, students are given the opportunity to learn according to how to solve the problems faced. One of the objectives of preparing modules is to provide teaching materials that are in accordance with the demands of the curriculum by considering the needs of students¹¹. The process of applying the learning module designed by the author involves mental activity by providing a stimulus to improve students' abilities related to the theory of early childhood education. Thus, the cognitive development module, will change the mindset of students who have always thought that finding literature and looking for reference sources related to early childhood education are considered difficult. Based on students' answers, the majority said that they still do not understand looking for literature related to the theory of early childhood education to be used as a reference in making papers. Therefore, the author thinks that literacy in PIAUD IAIN Pontianak students is critical to be given through policies carried out by the study program.

In addition, the study program must provide facilities to students to help lecturers when they experience problems in their learning. Of course, this will affect the activeness of the students. Through this development, realistic innovation is carried out in the form of developing ideas into the form of learning modules. Hopefully, this module can be developed into the material presented by the lecturers according to the needs of students. The author in designing this module hopes to form a new habitus in the literacy of PIAUD IAIN Pontianak students. adopting Pierre Bourdieu's thinking learning activity is a habitus in which a fairly long process acquired by the individual then becomes a common thing or spontaneity.. Of course, in this case, habitus can last a long time in the life of the agent (student) so that habitus can be said to be a cultural unconscious in the form of historical influences that are not considered natural.¹²

The habitus of Early Childhood Islamic Education students is related to the continuity of lectures which include, reading, writing, and discussing is a pattern of individual life because of the internalized experience in the agent. But, remember that the habitus of learning is not only due to internal factors.¹³ Therefore, the development of cognitive theory learning modules is expected to be a new learning habitus in the process of PIAUD students in understanding materials, especially cognitive development courses. Through this module, which is the material for student learning, it will become a learning activity that has cultivated

¹¹ Álvaro Fernández-López dkk., "Mobile Learning Technology Based on IOS Devices to Support Students with Special Education Needs," *Computers & Education* 61 (Februari 2013): 77–90, <https://doi.org/10.1016/j.compedu.2012.09.014>.

¹² Will Atkinson, "Falling in and out of Love: With and beyond Bourdieu on Individual Enchantment and Disenchantment," *Journal for the Theory of Social Behaviour* 52, no. 2 (Juni 2022): 377–91, <https://doi.org/10.1111/jtsb.12331>; Bayu, "Manajemen pendidik dan tenaga kependidikan di paud it alhamdulillah yogyakarta."

¹³ Julia Menard-Warwick, "Both a Fiction and an Existential Fact: Theorizing Identity in Second Language Acquisition and Literacy Studies," *Linguistics and Education* 16, no. 3 (September 2005): 253–74, <https://doi.org/10.1016/j.linged.2006.02.001>.

in students. The modules designed are capital in the student social arena or the interaction of lecturers and students. Moreover, habitus is closely related to the capital owned by students. Capital is considered an additional force that is produced and produced in the field where the student is studying, namely lectures. Lectures have an important role because of the capital that allows students to be able to control their own destiny as a student and the fate of others, namely the Early Childhood Islamic Education Study Program.

In addition, PIAUD students must be able to adapt in the study program environment where this new habitus is created through learning modules applied by the PIAUD study program. This of course requires help from social networks owned by students quickly. Social networks between students and students and lecturers make it easier for them to do something or get something they want such as literacy theories of early childhood education.¹⁴ Through the module designed by the author, it will also add insight or knowledge about learning styles where the material obtained is not only from lecturers but can be done by searching alone or reading by yourself based on literature that has been facilitated by the study program.

Through adaptation, PIAUD students must also use coping strategies to facilitate adjustments to the world of early childhood education. One of the coping strategies that must be carried out by PIAUD students is to receive advice and rules that apply in the PIAUD study program environment and understand the culture made in the form of policies.¹⁵ Through this coping strategy, PIAUD study program students must feel comfortable when they are in the PIAUD study program in seeking knowledge. Based on the author's interview with the head of the PIAUD study program, Mr. Rahnang, M.Pd currently students have received a new culture in new literacy through learning modules provided through strengthening understanding related to early childhood education theory. This corresponds to the author's view that through Bourdieu's theory students are not completely independent actors nor are they passive products. Habitus is closely related to the arena because the practices or actions carried out by students are formed by the arena, namely the PIAUD IAIN Pontianak study program. Habitus as a system structure that is always in a structured process as well as structuring through a student learning model transforms actions and directs to stay in line with the environment built by the PIAUD IAIN Pontianak study program.

In other words, habitus becomes the driving force of all actions, cognitive perceptions, and representations (de representations). Based on the explanation above, it can be said that habitus is formed by field or habitus also forms a field, so between habitus and field it is dialectical. If simplified that the learning modules designed by the author and implemented by the study program policy will form a new habitus or in other languages the study program

¹⁴ Joanne Gikas dan Michael M. Grant, "Mobile Computing Devices in Higher Education: Student Perspectives on Learning with Cellphones, Smartphones & Social Media," *The Internet and Higher Education* 19 (Oktober 2013): 18–26, <https://doi.org/10.1016/j.iheduc.2013.06.002>.

¹⁵ Aulia Laily Rizqina, "Golden Age: Pendidikan Inklusi Berbasis Budaya di Lingkungan PAUD Lab. FIP UNY Pedagogia," *Annual Conference on Islamic Early Childhood Education (ACIECE)* 4 (2020), <https://conference.uin-suka.ac.id/index.php/aciece/article/view/123>; Rizqina dan Suratman, "Manajemen Ekstrakurikuler pada Peserta Didik di PAUD IT Alhamdulillah Yogyakarta."

becomes a driver in student cognitive change.¹⁶ This cognitive change will certainly have an impact on optimal student learning outcomes, as follows: (1) satisfaction and pride that can foster learning motivation; (2) increase confidence in one's own abilities; (3) stability and resilience of learning outcomes; (4) Thoroughly obtained learning outcomes; (5) the ability of students to control and assess and control themselves in learning efforts.¹⁷

Through modules designed so that PIAUD students think correctly in obtaining relevant and reliable knowledge, think reasoning, reflective, responsible, and proficient in thinking. A person who thinks critically can determine the relevant information. Critical thinking is an ability that must be trained in students, because this ability is indispensable in life. Lecturers need to help students to develop critical thinking skills through strategies, and learning methods that support students to learn actively. Critical thinking is synonymous with decision making, strategic planning, scientific process, and problem solving.

In principle, policy changes made by the PIAUD study program in implementing cognitive development modules as an independent learning effort for students which are closely related to changes in the learning behavior of PIAUD students. Moh. Surya posits the characteristics of behavior change as a result of learning, namely: 1) Conscious and intentional changes The behavioral changes that occur are the conscious and intentional efforts of the individual in question. 2) Continuous change The increase in knowledge or skills possessed is a continuation of the knowledge and skills acquired before. 3) Functional change Any change in behaviour that occurs can be utilized for the benefit of the individual concerned, both for present and future interests. 4) Positive changes Changes in behavior that occur are normative and show progress. 5) Changes that are active to acquire new behaviors, the individual concerned is actively seeking to make changes. 6) Changes of a permanent nature The behavioral changes from the learning process tend to settle down and become an inherent part of him. 7) Purposeful and directed change Individuals carrying out learning activities must have goals that are not achieved, both short-term goals and long-term goals. 8) Overall behavior change Learning behaviour change is not just about acquiring knowledge, but also includes obtaining changes in attitudes and skills.

At least, four categories are applied in the use of learning modules to develop literacy-based student cognitive, namely information models, personal models, interaction models and behaviour models, so learning models are classified into four groups, namely; 1) information processing models; 2) personal model (personal family); 3) social model (social family); and behavioural models of teaching. The information processing model, is a model that explains how individuals respond to their environment by organizing data, formulating problems, building concepts and problem-solving plans as well as the use of verbal and non-

¹⁶ Omar Lizardo, "The Cognitive Origins of Bourdieu's Habitus," *Journal for the Theory of Social Behaviour* 34, no. 4 (Desember 2004): 375–401, <https://doi.org/10.1111/j.1468-5914.2004.00255.x>.

¹⁷ Ilin Nurhamida, "Problematika Kompetensi Pedagogik Guru Terhadap Karakteristik Peserta Didik," *Jurnal Teori dan Praksis Pembelajaran IPS* 3, no. 1 (30 April 2018): 27–38, <https://doi.org/10.17977/um022v3i12018p027>.

verbal symbols. This model focuses attention on the development of creative and potential abilities to study individuals and societies in addition to intellectual development.¹⁸

Personal model, in this model the emphasis of learning is more on developing the personality of individual citizens learning by paying attention to emotional life. The learning process is directed so that learning citizens can understand themselves (self-aware), be responsible for the achievement of their goals, in order to achieve a better quality of life, be independent and productive.¹⁹ Furthermore, the social model that prioritizes individual skills in relation to study programs and between students focuses its attention on the process by which the existing reality is seen as a social negotiation. The social model is designed to take advantage of the phenomenon of cooperation, so that citizens learning in groups can define problems, explore problems, collect relevant data, and test and develop hypotheses while developing the concept of democratic education. The fourth is the behavioral system model, built on the basis of a theoretical framework of behavior change, so that learning is systematically directed at a number of behaviors that are small and not comprehensive. Learning prioritizes the actions of observable learning behaviors.²⁰

If you look at the use of learning modules to develop literacy-based cognitives in PIAUD IAIN Pontianak students using a new program development model prepared based on the experience of implementing programs that have been implemented, in accordance with the needs of PIAUD IAIN Pontianak students and accordance with the development and changes in the environment. By using an information processing models approach; personal (personal family); 3) social (social family); and behavioural models of teaching. This model is classified as effective and successful when carried out by the PIAUD IAIN Pontianak study program. (Interview Rahnang, Head of PIAUD IAIN Pontianak Study Program). The research conducted by the authors is already as systematic as other studies have done. In the implementation carried out first give a pretest then given treatment (treatment) and finally a post test. Pretest and post-test scores are managed and then become student learning outcomes before and after the implementation of learning modules designed by the author.²¹

For data on improving cognitive and critical thinking, students obtained scores that entered the very critical level of 29 students and critical 2 students. Meanwhile, if it is concentrated, 90% of students are very critical and 10% of students are critical. Judging from the data, it shows that literacy-based cognitive development through learning modules designed by the author shows that the level of critical thinking of students tested in semester 5 of PIAUD IAIN Pontianak is very critical and critical. Therefore, cognitive development carried out through modules that have been designed to improve students' cognitive abilities in understanding the theories of early childhood education and being able to elaborate and

¹⁸ Zhijun Chen, Riki Takeuchi, dan Cass Shum, "A Social Information Processing Perspective of Coworker Influence on a Focal Employee," *Organization Science* 24, no. 6 (Desember 2013): 1618–39, <https://doi.org/10.1287/orsc.2013.0820>.

¹⁹ Ruth Deakin Crick, "Learning How to Learn: The Dynamic Assessment of Learning Power," *The Curriculum Journal* 18, no. 2 (Juni 2007): 135–53, <https://doi.org/10.1080/09585170701445947>.

²⁰ Zalzulifa Zalzulifa, *Pembelajaran Bahasa Pendekatan Wirausaha Penerbitan: Sebuah Metode Tematik Vokasi* (Surakarta: Muhammadiyah University Press, 2018).

²¹ Hadiyanto Hadiyanto, *Teori dan Pengembangan Iklim Kelas & Iklim Sekolah* (Jakarta: Kencana, 2016).

apply them in existing tasks for students, especially for thesis. In addition, based on quantitative and qualitative data, it shows that the use of literacy-based cognitive development modules designed by the author can be used by students easily. In addition, based on observations, it also shows that PIAUD IAIN Pontianak students are happy when there is a module designed by the author because it contains theories of early childhood education.

CONCLUSION

This research resulted in a module on early childhood education theory as literacy material for students of the IAIN Pontianak Early Childhood Islamic Education study program. Modules designed by the author are then developed into material for study programs and can be used as textbooks in early childhood development courses. Of course, the process of doing the module is based on material and media input by the lecturer of Early Childhood Education IAIN Pontianak. Based on the module from the results of the development carried out by the PIAUD IAIN Pontianak study program, the applied learning module has its own characteristics. The module designed by the researcher contains material in the form of a collection of early childhood education theories and their figures. This module's research shows very feasible results based on the assessment of material experts and media experts and students. This module can be used by PIAUD IAIN Pontianak lecturers as teaching material related to the theory of early childhood education.

This article has several shortcomings, especially in the application in the resulting module only used for PIAUD IAIN Pontianak students. In addition, this study only used a few student samples so that the products produced were in accordance with the conditions of the PIAUD IAIN Pontianak study program. The authors recommend that this study be developed by other studies in particular the deficiencies present in this study. So that the resulting modules can be used in the PIAUD study program at universities in Indonesia.

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