# Neuroparenting Book Development: Stimulation of Children's Brain Development

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# *Neuroparenting Book Development*: Stimulation of Children's Brain Development

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## Abstrak
*This research aims to yield a neuroparenting book as the nurture model for stimulating children's development that is appropriate to be used by parents. The result of need analysis finds that parents are not yet optimal in stimulating the child's development with various activities. Neuroparenting is a form of nurturing that optimizes the development of the brain. The methods used are the Research and Development 4-D model. The product is validated by experts and is trialed with 40 parents. The data gathering techniques are observation, questionnaires, interviews, and documentation. The analysis while disseminating the questionnaire was through descriptive analysis, and the product quality was through quantitative data analysis. The development of the book's content includes nurture, child's characteristics, positive upbringing, parents' emotions, effective communication, child's activities, health, and character building. This study shows that the result of the neuroparenting book is declared to be very appropriate to use, with the result from media experts at 84,67%, material experts at 84.33%, and language experts or linguists at 88,67%. Based on trials, this book has benefits for parents in order to increase the knowledge, attitudes and skills of the community in stimulating children's growth and development.*
**Keywords:** ***neuroparenting, stimulation, children development***

## Introduction

A specific brain study on young children has found that brain development improves swiftly, up to 95%, compared to an adult's brain (Hua et al., 2003) (Suyadi & Ulfah, 2015). The study of children's nurture and neuroscience in young children Islamic education has a big contribution to the success of character education and integrative holistic education, as stated in the Curriculum 2013 Early Child Education (Permendikbud, 2014) and realizes the Holistic Integrative Early Childhood Education based on the mandate of Presidential Regulation No. 60 of 2013 (Ulfah, 2019) (*Peraturan Presiden Nomor 60 Tahun 2013 Tentang Pengembangan Anak Usia Dini Yang Holistik Integratif*, n.d.).

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Neuroscience can be a reference because it has a complete data source on the stimulation and growth of young children. This statement is in line with the neuroscience theories, for instance, visual arts, kinesthetic arts, musical arts, art and the brain, cognitive and the brain, (Zeki, 2017) (Rektor et al., 2013) (Alain et al., 2019) (Demarin et al., 2016) *Brain Based Learning* as a beneficial strategy (Arun & Singaravelu, 2018) (Santosa et al., 2020) *brain game* (Ahmad et al., 2021) (Mamayson et al., 2020) and the brain-based development of language (*neurolinguistik*) (Budianingsih, 2017) (Oshchepkova & Zubova, 2018). But, the study of neuroscience that is tied to that education/nurture has not been optimized from the perspective of education/nurture.

This can be proven by the neuroscientists who have done numerous studies in the educational field, such as Brain Based Learning, Quantum Learning, Multiple Intellegences and so forth. Those brain-based learnings have been implemented in early childhood education, but there are still a few who dig deeper about the relation between a child's nurture and neuroscience, even some of the implementations tend to be forced, thus improving the quality of education (Ariyani, B., Wasitohadi, Rahayu et al., 2016). The example of the implementation in early childhood education is the concept of Multiple Intelligences which is a developing product at the moment, but not yet optimized for the betterment of learning quality (Ulfah & Khoerunnisa, 2018) (Syarifah, 2019). Moreover, in some areas, teachers are mistaken in their understanding of Multiple Intelligences. For example, when the teacher knows that a child has kinesthetic intelligence, the teacher does not know how to teach that child in a physical lesson based on the theory of Multiple Intelligences (A. Tabi'in, 2017) (Ulfah & Khoerunnisa, 2018). It becomes worse when not optimizing the cooperation between early childhood education and parents to hold the learning at home during Covid-19 pandemic (Kemdikbud, 2020) (Astuti & Harun, 2020).

A nurture in Islamic education perspective can realize the perfect human in all early childhood potential growth to create sholikh and insan kamil children (WARDI, 2017) (A. R. Hamzah, 2017) (Santi & Yazid, 2020). The center of a human's potential is inside the brain (Ulwan, 1999) and the knowledge branch that learns about the brain is neuroscience (Dougherty & Robey, 2018) (Rushton, 2011) (Loor et al., 2020) whereas the model of children's nurture has many references in the Qoran and Hadis. Another problem is that up until now, Indonesia has not yet had the formal education that teaches an individual to be a parent, while various nurturing styles exist. Based on the Baumrind study, there are three nurture styles: authoritative, democratic, and permissive (Baumrind, 1966).

Neuoroparenting has become a part of neuroscience development, which examines interdisciplinary issues in medical studies, psychology, and education about nurture based on the child's brain development (Rawdin, 2019). The supporters of neuroparenting believe that parents need training, especially about how a baby's brain develops (Macvarish, 2016). This is in line with the research showing that the baby's brain has 100 billion neurons, or nerve cells, which evolve (Suyadi & Ulfah, 2015). The infancy period is a critical period (Lillard, 2021) where parents have to pay more attention and work harder to stimulate their baby's brain to attain optimal development. Whereas, children who are under that golden age are included in early childhood education so that their growth can be optimized (Suyadi & Ulfah, 2015). For this reason, early childhood education tries to provide stimulation, not only physically but also mentally, as well as the readiness of children to be able to follow further education, or elementary school (Hua et al., 2003).

Early Childhood Islamic Education fundamentally examines neuroscience and nurture (parenting) interactively and collaboratively. However, the initial research shows that the relationship between early childhood Islamic education and parenting is still mostly independent and separate. Almost all of the research is based on descriptive qualitative, case studies and literature reviews. This research focuses on the development of a guidebook that parents can use. This research becomes crucial because it yields a neuroparenting guidebook. This research is a development from parenting science research, but it has become a new take

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on neuroparenting. This research helps parents broaden their knowledge and skills about nurturing and serves as a guide to early childhood education in conducting parenting activities in an endeavor to actualize the Holistic Integrative Early Childhood Education. (*Peraturan Presiden Nomor 60 Tahun 2013 Tentang Pengembangan Anak Usia Dini Yang Holistik Integratif*, n.d.) (Ulfah, 2019) thus, children's growth can be optimized and their characters can be well-formed.

The purpose of the neuroparenting book development research was to describe the development of a guidebook, assess the eligibility of the book by experts and apply the book to 40 parents in Cirebon. Researchers conducted a needs analysis of 200 parents in several West Java PAUD units in November 2020 using the google form. The findings are: 70% of parents have not yet optimized their nurturing of their children, 30% of parents have not yet understood children's development and stimulation according to their brain development, 25% parents are able to nurture their children based on their learning styles, but 80% parents still make mistakes/violations and 95% parents stated that they need a guide to nurture their children. Therefore, this research is important to do. Novelty in this research is the development of a neuroparenting model book. This book covers various aspects of parenting that focuses on optimizing children's brain development. Stimulation is designed hierarchically according to the stages of brain development and age characteristics of the child.

## Method

This research used R and D (*Research and Development)*(Yuniarni, 2021) to produce a neuroparenting book that could be utilized by parents at home according to their needs (Sugiyono, 2019). The model used was the 4D (*Four* D) model, which was developed by Thiagarajan and has 4 stages, as pictured in picture 1 (Thiagarajan & Sivasailam, 1974).

Picture 1. Research stages

The subject of this research was forty (40) parents in Cirebon Regency and Cirebon City, West Java, who were randomly picked from diverse educational and economic backgrounds and it was held from August to December 2022, the odd semester of the 2022/2023 academic year. The data was collected using various techniques, namely 4 methods: interviewing parents and teachers, observing parenting activities and nurture by parents, questionnaire for parents and documenting the nurture activities by parents. The data analysis in this research used the descriptive analysis technique in analyzing the observation results in Early Childhood Education in Cirebon Regency/City, and then the results of the book's assessment from experts were calculated using percentages. By those experts; material experts, linguists, and media experts, the data was then turned into tables to make it easier to read the results. The data was then described and concluded using the percentage of book feasibility (Sugiyono, 2011). The questionnaire's validity analysis used a *likert* scale with positive criteria. The interval Validity Score: 81% - 100 % (very good), 61% - 80 % (good), 41% - 60 % (enough), 21-40% (bad) dan 0-20% (unqualified). The validity test of the data was through triangulation, namely sources, methods, time, therefore the data resulted would be more valid (Sugiyono, 2019). The neuroparenting book has been declared applicable by parents in a category that is, at least, "good".

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## Result and Discussion

Research-based study and its development referring to the model from Thiagarajan were carried out in 4 stages, i.e., defining, designing, developing, and disseminating, with the following explanation:

1. *Define* Neuroparenting book

   This stage is a step before designing the media, that is the neuroparenting book, which consists of 5 activities according to Thiagrajan (Thiagarajan & Sivasailam, 1974), namely:

   a. *Front and end analysis*, it is an initial analysis of forty (40) parents randomly picked in Cirebon Regency and Cirebon City. The aim of this stage is to find the problem felt by parents when they nurture their children. The findings are: 70% of parents have not yet optimized their nurturing of their children, 30% of parents have not yet understood children's development and stimulation according to their brain development, 25% parents are able to nurture their children based on their learning styles, but 80% parents still make mistakes/violations and 95% parents stated that they need a guide to nurture their children.
   b. *Learner analysis*, which is the characteristic that 95% of children are bored with online learning, 80% of children tend to be addicted, 60% of parents stated that their children suffer from violence, and 80% of them want to get various ideas about varied activities. Parents need a guidebook for practicing neuroparenting. This parenting model can increase parental knowledge and skills to stimulate children based on brain development.
   c. *Task Analysis,* that is a task analysis from the guidebook's achievement, which is parents having knowledge and skills in educating their children, especially in comprehending a child's brain development and recognizing a child's characteristics. Other than that, there are various child's activities included in the neuroparenting book.
   d. *Concept analysis* is analyzing the concepts poured into the neuroparenting book, analyzing the theme in neuroparenting. This book is based on parents' needs to optimize their children's growth with various brain-friendly activities.
   e. *Specifying instructional objectives* or analysing the concept of neuroparenting book's purpose as knowledge and skills for parents in educating their children to optimize their development and build children's character according to their brain development.

2. *Design Neuroparenting* book

   This stage brought out a book draft that comprises: 1) Introduction, including background, book's purpose, scope, benefits, book's material outline, target, and the instructions for using the guidebook; 2) Main section, including neuroparenting guidebook material, which is elaborated into eight (8) materials. Each material has an evaluation and reflection as a material deepening for the parents; 3) Closing section, consisting of a bibliography, glossary, and answer key. The material covered in the book includes parenting knowledge based on early childhood brain development, early childhood characteristics, positive brain-friendly parenting, emotional stability of parents, effective communication, brain health, brain-friendly activities and character building.

3. *Develop Neuroparenting book*

   Thiagarajan categorized this development stage into two activities, i.e., expert assessment and development testing of book products. The products that have been made in the design stage, are then assessed by material experts, linguists, and media

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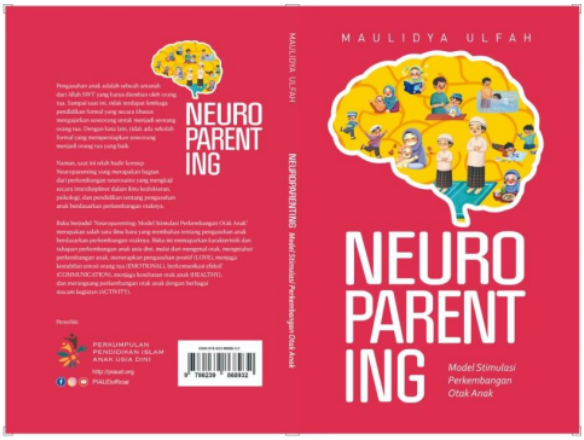
experts using an assessment instrument. This expert assessment was conducted by 8 experts, consisting of material experts, language experts or linguists, and media experts. In the validation stage, there were 15 observation points that were assessed using a rating scale ranging from 1 to 100%.

Table 1. Expert Validation Results

| No. | Expert | Resukt |
|---|---|---|
| 1. | material expert 1 | 89,33% |
| 2. | material expert 2 | 82.67 % |
| 3. | material expert 3 | 78.67 % |
| 4. | material expert 4 | 88 % |
| 5. | language expert 1 | 85,33% |
| 6. | language expert 2 | 84% |
| 7. | media expert 1 | 86,67% |
| 8. | media expert 2 | 90,67% |

The expert media validator obtained an average score of 88.67%, the language expert obtained 84.67%, while the content expert obtained an average score of 84.33%, categorizing it as highly valid and suitable for field testing. The results of the assessment and expert development suggestions for the neuroparenting book were then used as a reference to improve the book. Based on the results of the validator's assessment, the cover of the neuroparenting book after being revised is as shown in Picture 2 below:




Picture 2. Revised book cover

The field test was randomly conducted on 40 parents in the City and Regency of Cirebon. The parents underwent training, studied the guidebook, and practiced nurturing their children in their daily lives(N. H. Hamzah et al., 2021). During this field test, the researcher interviewed and observed the parents' responses to their children's development.

Based on the results of tests on 40 parents, it was found that 100% of parents experienced an increase in knowledge and skills before and following training in the neuroparenting model. The results of the assessment of parents before conducting neuroparenting training, the lowest score was 6 and the highest was 21. Meanwhile,

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after the training the lowest score was 27 and the highest was 30. The increase in parents was supported by the level of education, social activity and interest in learning childcare. The results of interviews with parents (MN) state that this book is useful, the material presented is important. Other parents (IB) stated that they could practice the neuroparenting model but still had difficulty understanding the terms in parenting.

4. *Disseminate*

The dissemination phase consists of three activities: book packaging, diffusion, and adoption. The implemented neuroparenting book is then evaluated for its practicality and effectiveness among parents. This stage serves as the final step in the research and development process, which involves book packaging, diffusion, and adoption. The book packaging involves printing the neuroparenting book. The diffusion aspect in the dissemination process ensures that the book is absorbed by parents and utilized by early childhood education units as a guide in parenting activities.

The research findings discussed in this article focus on the development of the neuroparenting book, covering its inception, process, and outcomes, as well as the book's quality from the perspective of its suitability. The analysis of its development is as follows:

a. Book Development Process

According to Sugiyono, the research and development conducted by the researcher resulted in the creation of a neuroparenting book using the 4D development model proposed by Thiagarajan, which consists of four stages: define, design, develop, and disseminate (Thiagarajan & Sivasailam, 1974). The process begins with an analysis through observation and interviews with parents, as well as observing the characteristics of children, to analyze fundamental issues faced in the process of nurturing early childhood education.

The developed book is intended for parents, tailored to the book's characteristics and parents' needs, and undergoes several validation processes, including content expert validation, media expert validation, and language expert validation, to ensure that the book is valid, practical, and effective (Daryanto, 2013) . The feasibility testing involved eight experts, resulting in a book design and development that is suitable for parents' use. Based on the validation assessment results, it can be analyzed that the book has an appealing cover design, engaging content and layout, appropriate word selection following the rules of the Indonesian language, and sentences that do not have ambiguous meanings. The book also employs suitable font types, font sizes, and punctuation marks.

In terms of content validity, based on the expert assessment, the book achieved a percentage score of 88.67%, indicating its high validity for parental application. The researcher can analyze that the media meets the observation criteria, including comprehensive subtitles, relevant depth of content for parents' needs, clear and systematic sentences, reliable and accountable bibliographic sources, interesting and easily understandable content supplemented with examples and tips for various child activities.

After obtaining "very good" results from expert validation, the neuroparenting book was then tested by involving 40 parents. Based on the scores obtained, the researcher can conclude that the book can be utilized by parents as a model for nurturing their children. Parents showed enthusiasm and interest in reading and implementing the book's contents.

b. Quality of the Neuroparenting Book

Fleming and Leview state that a quality product consists of five essential aspects: clear and explanatory material with user-friendly instructions, media presentation that aligns with the theme, appropriate and non-excessive content, accountable accuracy of the material, and adherence to standard rules in media presentation (Nesbit & Leacock,

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2007). This can be analogized to a book that helps parents remember practical advice, clearly presents the content of the book, corrects any misconceptions held by parents, introduces new mindsets with up-to-date insights, and provides benefits in every sentence and word, serving as the basis for determining processes and evaluation results (Oladumiyte, 2014).

The product is validated by 8 competent experts, namely 4 material experts, 2 media experts and 2 language experts. After being assessed by experts, neuroparenting books were declared suitable for use by parents to increase children's knowledge and skills in stimulating children's growth and development according to brain development. The contents of the neuroparenting book consist of eighth topic: The first topic is about nurturing based on early childhood brain development. This material helps parents understand the brain, the parts of the brain and stimulation that is friendly to the child's brain and does not injure the child's brain. Subtopics include: 1) Issues in early childhood brain stimulation, 2) The child's brain, 3) Brain-friendly early childhood developmental stimulation, 4) Evaluation, and 5) Self-reflection. Objective: Parents can enhance their knowledge of nurturing based on early childhood brain development by understanding the consequences of non-brain-friendly nurturing, comprehending the development of the child's brain, its different parts, and brain-friendly developmental stimulation. Indicators: 1) Analyzing the consequences of non-brain-friendly nurturing, 2) Understanding the child's brain and its parts, 3) Applying optimal brain stimulation for early childhood, 4) Being able to evaluate and self-reflect.

Martin Davies, a professor at the University of East Anglia, UK, explains that parenting is the education of children from birth to adulthood, encompassing not only physical growth but also mental and psychological well-being. Parenting involves communication and interaction between parents and children, including activities such as providing protection, guidance, and nourishment during children's growth and development (Yani et al., 2017) .

The second topic is about Early Childhood Development. This material can assist parents in understanding the development, characteristics of early childhood so that parents can provide stimulation for children's growth and development based on the child's developmental stage and age and care more about brain-friendly stimulation. Subtopics include: 1) Challenges of educating children in the digital era, 2) Growth and development of early childhood, 3) Characteristics of early childhood as digital natives, 4) Learning styles of early childhood and efforts parents can make, 5) Evaluation, and 6) Self-reflection. Objective: Parents will understand the development of early childhood by recognizing the challenges of educating children in the digital era, understanding their growth and development, identifying characteristics and developmental tasks, learning styles of early childhood, and the efforts parents can make to optimize their child's development. Indicators: 1) Examining the challenges of educating children in the digital era, 2) Understanding the growth and development of early childhood, 3) Assessing the characteristics of early childhood, 4) Applying early childhood learning styles in daily life, 5) Being able to evaluate and self-reflect.

Nurturing includes protection by fulfilling children's rights, promoting their growth and development, protecting them from violence and discrimination, and shielding them from potential harm (Ulfah, 2020) (Risma et al., 2019). The alignment of the book's content with these aspects is crucial to discuss because the responsibility for protecting children lies with the government, the state, families, communities, and early childhood education institutions (Kuswanti et al., 2017)

The third topic is about Brain-Friendly Positive Nurturing (love). This material can assist parents in conveying and practicing effective communication strategies to their children well in everyday life. Subtopics include: 1) Roles of parents and involved parties in

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nurturing children, 2) Parenting styles practiced by parents, 3) Positive nurturing and efforts to apply it, 4) Evaluation, and 5) Self-reflection. Objective: Parents can apply brain-friendly positive nurturing with their children by understanding common mistakes in child-rearing, comprehending various parenting styles and their roles in parenting, identifying the parties involved in nurturing, understanding positive nurturing and strategies for implementation. Indicators: 1) Understanding the role of parents and parties involved in nurturing children, 2) Understanding different parenting styles and their impact when practiced by parents, 3) Implementing positive nurturing and strategies for its application, 5) Being able to evaluate and self-reflect.

Good nurturing involves preparing parents to care for the next generation by providing a secure foundation for children to explore their world (Hughes & Baylin, 2012). This includes protecting children from negative environmental influences. Knowledge of nurturing is essential for parents because the surrounding culture can negatively influence their children's behavior, and a religious foundation is necessary for raising children since parents will be held accountable (Beshir & Ekram, 2014) .

The fourth topic is about Parental Emotional Stability. Material on maintaining emotional stability of parents (emotional) can help parents to get to know the emotional brain, levels of emotion and provide strategies for maintaining emotional stability as well as strategies for dealing with emotional instability in parents. Subtopics include: 1) Emotional instability in parents, 2) Impacts of negative emotions on parents, 3) The emotional brain and stages of emotions, 4) Strategies to maintain emotional stability, 6) Evaluation, and 7) Self-reflection. Objective: To apply emotional stability in nurturing children and strategies to overcome negative emotions: understanding various forms of emotional instability in parents, recognizing the impacts of negative emotions on parents, understanding the emotional brain and stages of emotions, and developing strategies to maintain emotional stability. Indicators: 1) Understanding various forms of parental emotional instability, 2) Analyzing the impacts of negative emotions on parents, 3) Understanding the emotional brain and stages of emotions, 4) Designing strategies to maintain emotional stability, 6) Being able to evaluate and self-reflect.

The fifth topic is about Effective Communication between Parents and Children. This material can help parents have effective communication strategies with children. Subtopics include: 1) Communication mistakes in nurturing, 2) Understanding communication, 3) Characteristics and types of effective communication, 4) Strategies for effective communication between parents and children, and 5) Evaluation and 6) Self-reflection. Objective: Parents can communicate effectively with their children by understanding different types of ineffective communication and their causes, comprehending the meaning of communication, recognizing the characteristics of effective communication, and applying strategies for positive communication to achieve successful communication goals. Indicators: 1) Analyzing communication mistakes in nurturing, 2) Understanding the concept of communication, 3) Understanding the characteristics and types of effective communication, 4) Designing strategies for effective communication between parents and children, 5) Being able to evaluate and self-reflect. Parents who can befriend their children can build a communication pattern with their children to establish a bond that can influence their development (Daniel J. Siegel, 2013).

The sixth topic is about Stimulating Brain-Healthy Practices in Children. This material can help parents recognize healthy children, a variety of foods that can maintain a child's brain health. Subtopics include: 1) Brain-unfriendly foods, 2) Healthy children, 3) Criteria for healthy children, 4) Balanced nutrition for brain-healthy eating, 5) Training children to like healthy and halal food, and 6) Evaluation and 7) Self-reflection. Objective: Parents can design practices to train children to consume balanced and nutritious foods for the health of their brains: understanding brain-unfriendly foods, recognizing healthy children and their criteria, knowing brain-healthy foods and foods that can harm children's brains. Indicators: 1)

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Analyzing brain-unfriendly foods, 2) Understanding healthy children, 3) Analyzing the criteria for healthy children, 4) Recognizing balanced nutrition for brain health, 5) Designing strategies to train children to like healthy and halal food, 6) Being able to evaluate and self-reflect.

The synergy between parents and schools refers to the Regulation issued by the President Number 60 in 2013 in implementing holistic and integrative early childhood education (*Peraturan Presiden Nomor 60 Tahun 2013 Tentang Pengembangan Anak Usia Dini Yang Holistik Integratif*, n.d.) by providing stimulation, education, health and balanced nutrition services, child care, nurturing strategies, child protection strategies, and welfare (Maulidya Ulfah, 2020). The success of realizing this holistic and integrative early childhood education is supported by parental participation in school activities. One of the support is the parenting program as a platform for communication between parents and schools to provide the best education and nurturing for their children (Yanita Sari & Kosasih, 2019). The parenting program is also needed to prepare the golden generation in 2045 who have moral character based on Islamic norms in order to create a righteous generation (Yani et al., 2017).

The seventh topic is about a variety of brain-friendly activities. This material provides a variety of activities as ideas to stimulate learning while playing in a fun and brain-friendly way so that the more children are stimulated, the child's intelligence can develop optimally. Subtopics include: 1) Early childhood intelligence, 2) Principles of child development stimulation, 3) Stimulation during fetal development, 4) Stimulation for infants, 5) Variety of activities for early childhood, and 6) Evaluation and 7) Self-reflection. Objective: Parents can design brain-friendly activities to optimize the cognitive and overall development of early childhood: understanding the concept of stimulating through a variety of brain-friendly activities, and optimizing the development of children in various aspects including religious, moral, social, emotional, physical-motor, cognitive, and language development. Indicators: 1) Studying early childhood intelligence, 2) Understanding the principles of child development stimulation, 3) Practicing stimulation during fetal development, 4) Understanding how to stimulate infants, 5) Designing a variety of brain-friendly activities for early childhood, 6) Being able to evaluate and self-reflect.

The eighth topic is about Building Characters to Realize the Profiles of Pancasila Students and Rahmatan lil 'Alamin Students. This material can help parents introduce the profile of Pancasila students and strategies to stimulate them. Subtopics include: 1) The brain shapes behavior, 2) The concept of Pancasila student profile, 3) The concept of Rahmatan lil 'Alamin student profile, 4) Evaluation, and 5) Self-reflection. Objective: Parents can understand how the brain shapes behavior, the concept of Pancasila student profile, and the concept of Rahmatan lil 'Alamin student profile as lifelong profiles that possess competencies and behaviors aligned with the values of Pancasila, being God-conscious and having noble character. Indicators: 1) Studying how the brain shapes behavior, 2) Understanding the concept of Pancasila student profile, 3) Analyzing the concept of Rahmatan lil 'Alamin student profile, 4) Being able to evaluate and self-reflect.

The expected character, as explained by Thomas Lickona, is "a reliable inner disposition to respond to situations in a morally good way," which refers to a set of behaviors, attitudes, knowledge, motivations, and skills of a person (Marzuki, n.d.)(Tanto et al., 2019). The subtopics mentioned above make neuroparenting have the advantage of providing a comprehensive presentation on nurturing. This book can be applied by parents through interactive learning, rather than simply providing advice. Parents should be able to set an example for their children through practical nurturing practices. Therefore, this research becomes part of a process to develop textbooks or modules for parents and teachers to enhance their knowledge in parenting, in order to better protect and stimulate children's growth and development(Apriliyanti et al., 2021).

## Conclusion

Neuroparenting is a parenting model based on the development of the child's brain. This book becomes an essential requirement for parents after conducting a needs analysis. It is developed to encompass brain development, characteristics of early childhood, positive nurturing, emotional stability of parents, effective communication, brain-friendly activities for children, health, and character formation. The research results indicate that the developed book is highly suitable for parents, as assessed by media experts at 84.67%, content experts at 84.33%, and language experts at 88.67%. The neuroparenting book was then tested on 40 parents in the cities and regencies of Cirebon and disseminated. This research implies that the book can enhance the attitudes, knowledge, and skills of parents in nurturing children based on brain development, thereby influencing the policies of Early Childhood Education Units to utilize the neuroparenting book as a guide in parenting activities.

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