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The Impact of Dialogical Approaches in Extension Programs on Changing Mothers' Behavior for Stunting Prevention in Rural Areas

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Abstract

In Indonesia, numerous initiatives have been implemented to address the issue of stunting; however, these efforts have yet to yield optimal results. This study aims to critically evaluate the effectiveness of an extension program that utilizes a dialogical approach in modifying maternal behaviors related to the provision of adequate nutrition for their children. In the context of non-formal education, extension serves as a crucial learning process for adults, particularly in enhancing their overall quality of life. The research was conducted using a quantitative methodology, employing survey techniques to gather data, which were subsequently analyzed using both descriptive and inferential statistical methods. This study is among the first to empirically compare dialogical and traditional extension approaches within the context of rural Indonesia, providing robust quantitative evidence that interactive, collaborative learning environments significantly outperform conventional one-way communication models in promoting sustainable behavioral changes among mothers. The findings reveal that the extension program, when executed with a dialogical approach, exerts a significant positive influence on altering mothers' nutritional practices for their children. This outcome stands in stark contrast to traditional, linear extension models, which typically rely on one-way communication from the instructor to the participants. In contrast, the dialogical approach fosters an interactive environment where mothers are encouraged not only to ask questions and share personal experiences but also to engage in a more collaborative learning process that ultimately enhances their behavioral change towards better nutrition.

Keywords: rural, entrepreneurship, village-owned, enterprises, community, empowerment

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INTRODUCTION

Stunting is a significant public health issue in Indonesia, posing severe long-term consequences for the country's future generations, who are expected to be key contributors to the nation's development during its golden era. Stunting adversely impacts both the physical growth and cognitive development of children, which can, in turn, affect their overall quality of life and future productivity (Aulia Fitroningtyas, 2021). Despite various initiatives aimed at reducing stunting prevalence, the desired outcomes have yet to be fully realized. This ongoing challenge highlights the need for more effective strategies to address stunting, particularly in rural areas where the problem is most pronounced.

One of the primary strategies employed in addressing stunting, particularly in these rural areas, involves the implementation of effective extension programs (Bhutta et al., 2020). These programs are not merely informational; they play a crucial role in facilitating behavior change within rural communities, thereby contributing to their empowerment (Abbas et al., 2021). By focusing on education and communication, extension programs aim to alter the attitudes and behaviors of individuals or groups, which is essential for achieving long-term improvements in health outcomes. The link between stunting prevention and behavior change underscores the importance of well-designed extension initiatives in these communities.

Similarly, the relationship between self-acceptance and social support with self-confidence, as examined in the context of Madrasah Tsanawiyah, underscores the significance of personal and social factors in driving behavioral and attitudinal changes (Pastimo & Muslikah, 2022). By integrating approaches that enhance self-acceptance and leverage social support, extension programs can foster greater engagement and effectiveness, particularly in addressing critical health and social challenges such as stunting. The link between behavioral change, self-confidence, and community education highlights the potential of well-designed extension initiatives to achieve long-term improvements in rural health outcomes.

Central to the success of these extension programs is their ability to raise mothers' awareness about the importance of providing adequate nutrition to their children (Halder & Kejriwal, 2016). In the context of stunting prevention, mothers are a key demographic, as their knowledge and practices directly influence their children's health. Extension activities that are specifically designed to educate mothers can equip them with the necessary skills and information to ensure proper nutritional care. This focus on maternal behavior highlights the critical role of targeted education in reducing stunting rates and improving child health outcomes.

While traditional extension programs often rely on one-way communication models, a shift towards a dialogical approach has shown to be more effective in engaging participants (García-Carrión et al., 2020). The dialogical model, which encourages active participation, discussion, and experience-sharing, fosters a more interactive and engaging learning environment. This approach not only improves comprehension but also enhances the retention of information, leading to more sustained behavior change. The connection between dialogical methods and improved educational outcomes suggests that this approach could be particularly beneficial in the context of stunting prevention.

Supporting the efficacy of the dialogical approach is Everett Rogers' diffusion of innovation theory, which posits that innovations are more likely to be accepted and adopted when communicated through appropriate channels over time within a social system (Singhal, 2012). The application of this theory to stunting prevention highlights the importance of delivering relevant, high-quality, and easily

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understood information. Moreover, the dialogical approach's emphasis on active participation and social support aligns with the theory's principles, making it a powerful tool in driving behavior change. As such, research into the implementation and outcomes of dialogical approaches in extension programs is crucial for developing more effective and sustainable strategies to combat stunting in rural communities.

METHOD

This research adopts a mixed methods approach, combining quantitative and qualitative data to provide a comprehensive understanding of the research problem. The mixed methods approach leverages the strengths of both quantitative and qualitative research, allowing for a more nuanced analysis of complex issues. According to Creswell & Creswell (2018), mixed methods research offers a broader perspective on research problems compared to the use of a single method. By integrating these two approaches, researchers can achieve a more holistic view of the factors influencing stunting prevention, which is essential for developing effective interventions.

The population targeted in this study comprises mothers with toddlers residing in rural areas who are actively participating in stunting prevention extension activities. The sampling technique employed is purposive sampling, chosen to ensure that the selected participants are representative of the population of interest. The criteria for selecting participants include parents who actively engage in dialogue during the stunting prevention extension activities. This focus on active participants is critical for understanding how dialogical approaches influence behavior change. The principle of data sufficiency was applied to determine the sample size, ensuring that the data collected would be adequate for meaningful statistical analysis.

Data collection for this study was conducted using a combination of in-depth interviews, focus group discussions (FGDs), and questionnaires, aligning with the mixed methods approach. Qualitative data were gathered through the interviews and FGDs, providing rich, contextual insights into the participants' experiences and perceptions regarding stunting prevention. On the other hand, quantitative data were obtained using closed-ended questionnaires, which allowed for the systematic collection of information that could be subjected to statistical analysis. This combination of qualitative and quantitative data not only enhances the reliability of the findings but also provides a more comprehensive understanding of the factors influencing mothers' behaviors in the context of stunting prevention.

RESULTS AND DISCUSSION

This study aims to evaluate the impact of material quality, instructor interaction, and extension methods on behavior change, particularly in the context of stunting prevention programs. The findings provide actionable insights for designing extension programs that prioritize high-quality materials, foster meaningful instructor interactions, and implement participatory methods to effectively drive behavior change among target populations. Material quality (X1), instructor interaction (X2), and extension methods (X3) were analyzed as exogenous variables influencing the endogenous variable: behavior change. The results of the path coefficient analysis for each variable are presented below:

Table 1. Results of SEM PLS Analysis of Extension with Dialogic Approach and Behavioral Change of Mothers

Exogenous Variable	Endogenous Variable	Path Coefficient
Material Quality (X1)	Change in Behavior (Y)	0.45
Instructor Instraction (X2)	Change in Behavior (Y)	0.30
Extension Methods (X3)	Change in Behavior (Y)	0.25

Based on the data in Table 1, compared to other variables, the quality of materials has the most significant influence, with a path coefficient of 0.45. This means that the likelihood of behavior change among extension participants will increase if the extension materials are of high quality. Good materials include accurate, relevant, and easily understandable information so that participants can apply their knowledge in everyday life. Everett Rogers states that high-quality extension materials include accurate, relevant information presented in an easily understandable manner, making people more likely to accept and adopt innovations conveyed through them (Danuso et al., 2022; Imran et al., 2021). In andragogy theory, Malcolm Knowles' "Need to Know" principle states that adults want to know why they should learn something before they engage in the learning process.

The path coefficient for instructor interaction is 0.30. This indicates that good interaction between the instructor and participants also plays a significant role in changing behavior. Good interaction includes two-way communication, clarity of information, and the instructor ability to answer questions and provide useful feedback. Instructor who can build good relationships with participants are more likely to succeed in motivating participants to change their behavior (Alnaim & Albarq, 2023; Javed et al., 2020). It is essential to have two-way interaction between the instructor and participants, according to the participation-based communication model. Effective extension not only informs people but also involves them in speaking and providing feedback. This aligns with the andragogy principle of Self-Concept, which emphasizes that adults are more inclined to be self-directed and appreciate experiences. Dialogic extension provides a breakthrough for promoting health to the broader community (Javed et al., 2020; Suherman et al., 2023).

The path coefficient for extension methods is 0.25. Although its influence is less compared to the quality of materials and instructor interaction, the techniques used in extension are still very important for behavior change. Creative and appropriate extension methods for participants can enhance outcomes. In stunting prevention extension, participants can be more engaged and motivated to apply what they learn through participatory techniques such as group discussions or practical simulations. In adult education, the methods used in extension also significantly affect learning outcomes. According to the andragogy principle of Experience as a Learning Resource, adults' life experiences are a valuable learning resource. Interactive and participatory learning, such as group discussions or practical simulations, can enhance learning outcomes.

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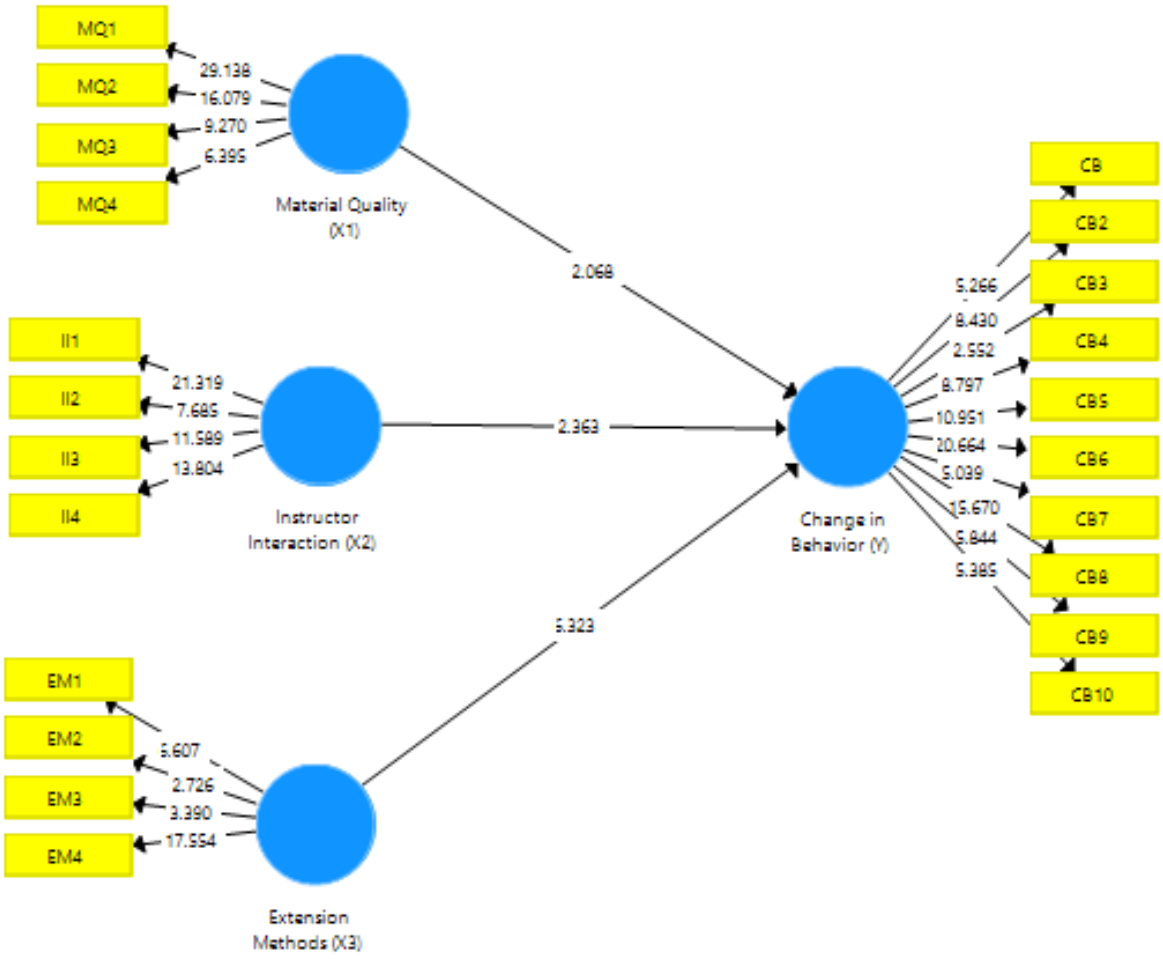

Figure 1. Path Cofficients

Table. 2 T Statistics for Path Coefficients

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/ STDEV|)	P Values
EM (X3) -> CB (Y)	0.4239	0.4334	0.0670	63.23	0.000
II (X2) -> CB (Y)	0.3117	0.2945	0.1319	23.62	0.018
MQ (X1) -> CB (Y)	0.2802	0.2934	0.1355	20.67	0.038

The statistical analysis of the path coefficients underscores the pivotal roles of material quality (X1), instructor interaction (X2), and extension methods (X3) in driving behavior change, each supported by significant T Statistics and P Values. Among these, extension methods (X3) emerged as the most influential factor, with a path coefficient of 0.4239 and a T Statistic of 63.23 (p = 0.000). This highlights the critical impact of interactive techniques, such as group discussions and role-playing, which foster experiential learning and align with theories like Dewey's experiential learning framework and Knowles' emphasis on learning through real-life applications. Instructor interaction (X2)

demonstrated a notable but moderate effect, with a path coefficient of 0.3117 and a T Statistic of 23.62 (p = 0.018), reflecting the importance of mutual respect and engagement in shaping behavior, as reinforced by Bandura's Social Learning Theory and Knowles' principle of self-concept in adult learning. Finally, material quality (X1), though exhibiting the lowest path coefficient at 0.2802, remained statistically significant (T Statistic 20.67, p = 0.038), confirming the foundational role of clear, relevant, and engaging materials in behavior change. This finding aligns with Rogers' Diffusion of Innovations Theory and Knowles' principle of "Need to Know," emphasizing that adults are more motivated to engage with content when its practical relevance is clear. Collectively, these results validate the integrated significance of these three variables in facilitating meaningful behavior change.

Table 3. Outer Loading

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
CB <- Change in Behavior (Y)	0.6831	0.6657	0.1297	52.659	0.0000
CB10 <- Change in Behavior (Y)	0.5927	0.5895	0.1101	53.852	0.0000
CB2 <- Change in Behavior (Y)	0.7361	0.7255	0.0873	84.305	0.0000
CB3 <- Change in Behavior (Y)	-0.3394	-0.3313	0.1330	25.518	0.0107
CB4 <- Change in Behavior (Y)	0.7154	0.7118	0.0813	87.971	0.0000
CB5 <- Change in Behavior (Y)	0.7224	0.7335	0.0660	109.507	0.0000
CB6 <- Change in Behavior (Y)	0.8214	0.8268	0.0398	206.636	0.0000
CB7 <- Change in Behavior (Y)	0.6105	0.5985	0.1212	50.388	0.0000
CB8 <- Change in Behavior (Y)	0.8077	0.8115	0.0515	156.697	0.0000
CB9 <- Change in Behavior (Y)	0.5904	0.5875	0.1010	58.437	0.0000
EM1 <- Extension Methods (X3)	0.6627	0.6561	0.1003	66.068	0.0000
EM2 <- Extension Methods (X3)	0.5618	0.5240	0.2060	27.264	0.0064
EM3 <- Extension Methods (X3)	0.5761	0.5546	0.1700	33.898	0.0007
EM4 <- Extension Methods (X3)	0.8181	0.8270	0.0466	175.540	0.0000
II1 <- Instructor Interaction (X2)	0.8293	0.8309	0.0389	213.193	0.0000
II2 <- Instructor Interaction (X2)	0.7217	0.7135	0.0939	76.851	0.0000
II3 <- Instructor Interaction (X2)	0.7845	0.7784	0.0677	115.888	0.0000
II4 <- Instructor Interaction (X2)	0.7994	0.7974	0.0579	138.036	0.0000
MQ1 <- Material Quality (X1)	0.8867	0.8856	0.0304	291.384	0.0000
MQ2 <- Material Quality (X1)	0.8013	0.8029	0.0498	160.793	0.0000
MQ3 <- Material Quality (X1)	0.7820	0.7714	0.0844	92.702	0.0000
MQ4 <- Material Quality (X1)	0.6637	0.6514	0.1038	63.947	0.0000

This study shows that behavioral change (Y) is significantly influenced by the quality of materials (X1), instructor interaction (X2), and extension methods (X3). Material quality, with the highest contribution (MQ1: path coefficient 0.8867, T Statistic 291.384), emphasizes the importance of clear, relevant, and easy-to-understand materials in supporting learning. Instructor interaction (II1: path coefficient 0.8293, T Statistic 213.193) also has a large impact, reflecting the importance of two-way communication, active involvement, and the instructor's ability to model positive behavior. Extension methods, especially those based on experience (EM4: path coefficient 0.8181, T Statistic 175.540), such as group discussions and practical simulations, play an important role in creating an applicable learning experience. The combination of these three factors suggests that an integrated approach—involving quality materials, effective interactions, and interactive learning methods—is key to driving significant and sustainable behavioral change.

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Furthermore, the role of community mobilizers has been shown to significantly contribute to fostering empowerment and behavior change within families and communities. Community mobilizers serve as facilitators who bridge the gap between extension programs and the target audience, ensuring that the interventions are contextually relevant and effectively implemented (Hasanah et al., 2022). Their ability to inspire collective action and provide localized support enhances the success of extension efforts by embedding them within the social fabric of the community. As one of the main challenges in raising young children, working mothers often face difficulties in balancing the demands of work with the needs of their children. This can affect various aspects of children's development, including meeting their emotional and physical needs (Wijayanto et al., 2022).

The findings of this study underscore the multifaceted nature of behavior change, particularly in the context of stunting prevention programs. By examining the contributions of material quality, instructor interaction, and extension methods, the research highlights the need for an integrated approach to designing effective interventions. Each of these factors plays a unique role, with material quality emerging as the most significant predictor, followed by instructor interaction and extension methods. The interplay among these elements provides critical insights into how behavior change can be fostered at both individual and community levels.

Material quality (X1), with the highest path coefficient (0.8867), emerged as the most influential factor in driving behavior change. This finding aligns with Everett Rogers' Diffusion of Innovations Theory, which posits that the adoption of new behaviors is heavily dependent on the clarity, relevance, and accessibility of the information provided. High-quality materials ensure that participants not only understand the content but also perceive its applicability to their lives. For example, in stunting prevention programs, materials that clearly outline nutritional guidelines, the importance of breastfeeding, or proper hygiene practices are more likely to be adopted if they resonate with participants' immediate needs.

Malcolm Knowles' reinforce the importance of material relevance. Adults are more motivated to engage with content when its importance and application are apparent. This study suggests that well-designed materials bridge the gap between theoretical knowledge and practical application, empowering participants to implement changes confidently. Furthermore, materials that use culturally sensitive language, visuals, and examples are likely to enhance comprehension and acceptance, particularly in diverse communities (Knowles, 1980).

Instructor interaction (X2), with a path coefficient of 0.8293, plays a pivotal role in behavior change through its capacity to foster engagement and build trust. Effective instructor-participant interaction relies on two-way communication, where participants feel heard and valued. This aligns with Bandura’s Social Learning Theory, which emphasizes observational learning and modeling as critical components of behavior change. Instructors who demonstrate desired behaviors, such as proper dietary practices or effective parenting strategies, act as role models, increasing the likelihood that participants will adopt similar behaviors.

Moreover, the Participation-Based Communication Model highlights the importance of creating environments where participants can ask questions, share experiences, and receive feedback. This study underscores that such dialogic approaches not only improve understanding but also empower participants by validating their input and experiences. When instructors treat participants as active contributors rather than passive recipients, they foster a sense of ownership, which is critical for sustained behavior change (Carlo & Padilla-Walker, 2020).

Extension methods (X3), though slightly less influential (path coefficient 0.8181), remain crucial in promoting participatory and experiential learning. Techniques such as group discussions, role-

playing, and simulations create dynamic learning environments where participants can practice new behaviors in a supportive setting. John Dewey's Experiential Learning Theory reinforces this approach, suggesting that active participation and reflection enhance learning outcomes.

The findings indicate that interactive methods not only engage participants but also leverage their prior experiences as valuable learning resources. For example, group discussions in stunting prevention programs allow participants to share challenges and collaboratively develop solutions, fostering a sense of community. Practical simulations, such as food preparation workshops, provide hands-on experiences that reinforce theoretical knowledge and build confidence in applying it.

An often-overlooked factor in extension programs is the role of community mobilizers. These individuals act as liaisons between program facilitators and participants, ensuring that interventions are culturally relevant and contextually appropriate. Community mobilizers help to establish trust within target populations, particularly in rural or marginalized areas where skepticism toward external interventions may exist. By integrating local knowledge and fostering collective action, mobilizers enhance the reach and impact of extension programs.

The study emphasizes that behavior change is not a linear process but a multifaceted one requiring the interplay of high-quality materials, effective instructor interaction, and participatory extension methods. Integrating these factors within a community-centered approach ensures that interventions are not only effective but also sustainable. For stunting prevention programs, this means creating environments where participants are empowered with knowledge, supported through meaningful interactions, and engaged in practical, real-world applications of what they learn. This holistic approach provides a robust framework for driving long-term behavior change and improving public health outcomes.

CONCLUSION

This study demonstrates that behavior change in stunting prevention programs is significantly influenced by material quality (X1), instructor interaction (X2), and extension methods (X3). Among these, material quality emerged as the most critical factor, highlighting the importance of clear, relevant, and practical materials. Instructor interaction also played a key role, emphasizing the value of effective communication and engagement in fostering behavioral adoption. Extension methods, while slightly less influential, remain essential for creating interactive and experiential learning opportunities that encourage practical application of knowledge. The findings underscore the need for an integrated approach that combines high-quality materials, meaningful interactions, and participatory methods to drive sustainable behavior change. These insights provide valuable guidance for designing and implementing effective stunting prevention programs and other community-based interventions aimed at improving public health outcomes.

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