



## Microlearning Content for Digital Zakat Education: Bite-Sized Learning Strategies for the Smartphone Generation

**Peni Haryanti**

Hasyim Asy'ari University Tebuireng Jombang  
[Peniha1190@gmail.com](mailto:Peniha1190@gmail.com)

### Abstract

This study aims to explore the effectiveness of microlearning content design in improving digital zakat literacy among the smartphone generation. The background to this research stems from the gap between the national zakat potential of Rp 327 trillion and the current realization around 12.5%, partly due to the low public understanding and accessibility of the digital zakat system. Given the characteristics of Generation Z, who tend to prefer short, interactive content that is easily accessible via mobile devices, microlearning is considered an appropriate learning strategy. The study used a mixed methods approach with explanatory sequential design and a Design-Based Research (DBR) framework to develop and test a prototype of microlearning-based zakat education content. Data analysis was conducted using SEM-PLS with 300 quantitative respondents and in-depth interviews with 30 qualitative respondents. The results showed that microlearning design significantly influenced digital zakat literacy ( $\beta = 0.612$ ), user engagement ( $\beta = 0.348$ ), and behavioral intention ( $\beta = 0.187$ ). User engagement served as an important mediator in strengthening the relationship between digital zakat literacy and online zakat payment intention. The tested structural model was able to explain 60.3% of the variance in behavioral intention and 40.2% of the variance in actual digital zakat usage. These findings confirmed that interactive microlearning strategies, such as gamification and personalized content, can increase digital zakat adoption. This study provides theoretical contributions by integrating cognitive load theory, dual-coding theory, and Islamic pedagogy into the context of digital zakat literacy, and provides practical implications for zakat institutions and educational technology developers in designing more effective educational content.

**Keywords:** Digital Zakat Education; Smartphone Generation; Zakat Literacy; Microlearning; Behavioral Intention

### Introduction,

In the rapidly evolving digital era, transformations in learning methods and religious practices are inevitable. Indonesia, as the world's most populous Muslim country, with 87.1% of its population being Muslim, faces significant challenges in optimizing its still-very-low zakat potential. Data shows that by 2024, the potential for zakat will reach IDR 327 trillion, but realization will only be around 12.5%, or IDR 41 trillion (BAZNAS, 2024). This situation indicates a significant gap between zakat potential and realization, partly due to limited understanding and accessibility of the digital zakat system.

The smartphone revolution has fundamentally changed the landscape of learning and social interaction. With the continued growth of smartphone users in Indonesia, the opportunity to implement zakat education through digital platforms is increasingly wide open. However, the main challenge is how to effectively deliver educational content to the smartphone generation, which is characterized by short attention spans and a preference for quickly consumed content.

Microlearning, or bite-sized learning, has proven to be an innovative solution to address these challenges. Recent research shows that microlearning can increase learning effectiveness by 5-10 times compared to traditional learning methods (Samala et al., 2023). This approach is highly relevant to the characteristics of Generation Z and digital natives, who are accustomed to smartphones, the internet, and digital information in easily digestible formats.

Indonesia's online learning market is showing a very positive trend, with online learning platform revenues estimated to reach US\$467 million by 2023 (Priyanto & Suhandi, 2022) and is predicted to continue to increase in the coming years. However, the digital literacy rate in Indonesia's education sector remained at 3.7 in 2022, with digital security receiving the lowest score. This figure indicates a significant gap between the potential of the digital economy and the readiness of infrastructure and human resources to optimally adopt technology in education (Irwanto & Irwansyah, 2020) (A. Hadi, 2018). This indicates that students and educators in Indonesia are still less aware of the importance of protecting personal information in the digital environment.

In the context of digital zakat, the National Zakat Agency (BAZNAS) has set an ambitious target of collecting 30% of zakat through digital platforms. However, achieving this target depends heavily on improving digital financial literacy among the public, particularly Generation Z, which is currently below the Southeast Asian average (Rahayu. R, 2022). This target reflects the government's commitment to optimizing digital technology to improve the effectiveness of zakat management. An empirical study involving 223 Indonesian Muslims showed that factors such as performance expectations, business expectations, facilitating conditions, and zakat literacy significantly influenced the intention to use online platforms to pay zakat (Rahadi et al., 2022).

Microlearning, defined as an instructional approach that delivers targeted, action-oriented, bite-sized content to achieve specific objectives in a short period of time (usually seconds or minutes), offers a suitable strategy for addressing the complexities of digital zakat education. This approach is well-suited to the content consumption behavior of the smartphone generation, who prefer information that can be accessed on mobile devices and consumed quickly.

This research is increasingly important given that Indonesia has implemented various initiatives and programs to promote digital-based education nationally. However, gaps remain in the utilization of digital technology for religious education, particularly zakat. Integrating microlearning into digital zakat education not only has the potential to improve public understanding of zakat obligations but also facilitate access and the process of zakat payments through digital platforms (R. Hadi et al., 2021).

This article aims to explore bite-sized learning strategies that can be implemented to improve digital zakat literacy among the smartphone generation. By analyzing the characteristics of microlearning and the specific needs of digital zakat education, this research is expected to make a significant contribution to the development of effective learning models to optimize zakat potential in Indonesia through digital technology (Samala et al., 2023).

## **Research Methodology**

### **Research Approach**

This study uses a mixed methods research approach with an explanatory sequential design to explore microlearning strategies in digital zakat education (Creswell, JW, & Plano Clark, 2017). A mixed approach was chosen because the complexity of the phenomena being studied requires in-depth understanding from both quantitative and qualitative aspects (Blank, 2013). This methodology allows researchers to integrate numerical and narrative data to provide a comprehensive understanding of the effectiveness of microlearning in the context of digital zakat education (Johnson & Onwuegbuzie, 2004).

### **Research Design**

This research applies a modified Design-Based Research (DBR) framework with an iterative spiral approach, where each development cycle involves intensive collaboration between researchers, Islamic education practitioners, and the digital zakat user community (Mckenney & Reeves, 2012). The phase began with an in-depth ethnographic analysis of the digital learning behavior of the smartphone generation, followed by co-design sessions involving stakeholders from various demographic backgrounds and levels of zakat literacy. The microlearning prototype was developed using an agile methodology with two-week sprints, enabling rapid response to user feedback and real-time adaptation to dynamic learning preferences. Each design iteration was validated through multiple checkpoints that integrated pedagogical, technological, and sharia-compliant perspectives, creating a balance between innovation and authenticity in the context of digital Islamic education.

The theoretical framework of the research adopts a multi-paradigmatic approach that combines the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) to understand the determinants of technology adoption, Cognitive Load Theory modified with the principles of Islamic learning pedagogy, and a Mobile Learning Framework adapted to the unique characteristics of the Indonesian religious learning ecosystem (Venkatesh et al., 2012). The integration of these three frameworks produces a hybrid model that not only accommodates the technical aspects of user experience but also considers spiritual dimensions and cultural sensitivity in the design thinking process. Construct validity is strengthened through theoretical triangulation involving cross-referencing with Islamic educational philosophy, contemporary digital pedagogy, and behavioral economics in the context of charitable giving. This approach enables the development of contextually relevant learning architecture that resonates with local values while maintaining international standards in instructional design and user interface optimization.

The population used in this study were Muslims aged 18-25, active smartphone users, using a purposive sampling method with specific criteria. There were 300 quantitative respondents and 30 qualitative respondents. Data collection was conducted through a survey using a 1-7 point Likert scale and in-depth interviews with participants. Data analysis used the Sem-PLS tool.

**Findings and Discussion,**

**Findings**

**Outer-Model Evaluation**

A measurement model evaluation was conducted to assess the validity and reliability of the constructs used in this study. The analysis involved 300 respondents from the smartphone generation (Gen Z and millennials) aged 18-35 who had experience with digital payment platforms.

**Table 1: Reliability and Construct Validity**

Construct	Cronbach's Alpha	Composite Reliability	AVE	√AVE
Microlearning Design (DM)	0.892	0.918	0.693	0.833
Digital Zakat Literacy (LZD)	0.876	0.905	0.658	0.811
User Engagement (KP)	0.845	0.887	0.612	0.782
Behavioral Intention (NB)	0.883	0.914	0.681	0.825
Actual Usage (PA)	0.798	0.859	0.607	0.779

The results show that all constructs exceeded the minimum threshold for reliability (Cronbach's Alpha > 0.7 and Composite Reliability > 0.7) and validity (AVE > 0.5). The square root of the AVE for each construct was higher than its correlation with other constructs, confirming discriminant validity.

**Table 2: Discriminant Validity - Fornell-Larcker Criterion**

	DM	LZD	KP	Note:	PA
DM	<b>0.833</b>				
LZD	0.612	<b>0.811</b>			
KP	0.578	0.643	<b>0.782</b>		
Note:	0.54	0.598	0.672	<b>0.825</b>	
PA	0.423	0.512	0.587	0.634	<b>0.779</b>

**Inner Model Evaluation**

The structural model was evaluated to test the hypothesized relationships between constructs. The R-square value indicates the predictive power of the model.

**Table 3: R-square and Adjusted R-Square Values**

Endogenous Construct	R-Square	Adjusted R-Square	Effect Size
LZD	0.374	0.372	Currently
KP	0.521	0.518	Big
Note:	0.603	0.600	Big
PA	0.402	0.398	Currently

The results showed that microlearning design explained 37.4% of the variance in digital zakat literacy, while the combined effect of microlearning design and digital zakat literacy explained 52.1% of the variance in user engagement. The model explained 60.3% of behavioral intentions and 40.2% of actual usage behavior.

### Hypothesis Testing Results

**Table 4: Path Coefficients and Hypothesis Testing**

Hypothesis	Track	Path Coefficient	t-Statistic	p-value	Decision
H1	DM LZD	0.612	14,287	0,000	Supported
H2	DM KP	0.348	7,234	0,000	Supported
H3	LZD KP	0.421	8,976	0,000	Supported
H4	DM NB	0.187	3,421	0.001	Supported
H5	LZD NB	0.234	4,567	0,000	Supported
H6	KP NB	0.445	9,123	0,000	Supported
H7	NB PA	0.634	15,678	0,000	Supported

All seven hypotheses were supported at a significance level of  $p < 0.05$ , indicating a significant relationship between the constructs. The strongest direct relationship was found between behavioral intention and actual usage ( $\beta = 0.634$ ), followed by the relationship between microlearning design and digital zakat literacy ( $\beta = 0.612$ ).

**Table 5: Indirect Effects and Mediation Analysis**

Mediation Path	Indirect Effects	t-statistic	p-value	Media Types
DM – LZD – KP	0.258	6,234	0,000	Partial
DM – LZD – NB	0.143	4,168	0,000	Partial
DM – KP – NB	0.155	3,876	0,000	Partial
LZD – KP – NB	0.187	5,234	0,000	Partial
DM – NB – PA	0.119	2,987	0.003	Partial
LZD – NB – PA	0.148	3,4566	0.001	Partial
KP – NB – PA	0.282	7,123	0,000	Partial

### Discussion

#### Key Findings and Theoretical Contributions

The main objective of this study is to investigate how microlearning content design influences effectiveness.educationdigital zakat among the smartphone generation. The findings provide strong empirical evidence supporting the proposed theoretical framework, with all seven hypotheses supported. The model explains substantial variance in key outcomes, with behavioral intention demonstrating the highest explanatory power ( $R^2 = 0.603$ ).

The strongest finding revealed that the microlearning design significantly improved digital zakat literacy ( $\beta = 0.612$ ,  $p < 0.001$ ), supporting the theoretical proposition that a bite-sized learning approach is highly effective for complex religious finance concepts. This finding aligns with cognitive load theory, which suggests that breaking down zakat education into easily digestible microcontent reduces cognitive load and improves comprehension.

Unexpectedly, the study found that user engagement served as a significant mediator between microlearning design and digital zakat literacy and behavioral intentions. This finding goes beyond previous literature by demonstrating that educational content design alone is not enough; content must encourage active engagement to translate into behavioral outcomes. The mediation effect of user

engagement (indirect effect = 0.282,  $p < 0.001$ ) was stronger than anticipated, highlighting the critical role of interactive and engaging content design in digital religious education.

### **Relationship to Existing Literature**

The findings strongly support the statement of Samala et al.(2023)that microlearning can increase learning effectiveness 5-10 times compared to traditional methods. Our results provide quantitative evidence with a strong path coefficient between microlearning design and digital zakat literacy ( $\beta = 0.612$ ). However, our study extends these findings by demonstrating its specific application to religious financial education, an area previously underexplored in the microlearning literature.

The significant relationship between digital zakat literacy and behavioral intention ( $\beta = 0.234$ ,  $p < 0.001$ ) supports the findings Ghofar et al. (2024)regarding the importance of zakat literacy in encouraging online zakat payment behavior. Our study advances this understanding by demonstrating how microlearning design can specifically enhance this literacy, providing a practical pathway to increasing zakat collection rates.

Unlike previous studies that emphasized technology acceptance, our findings highlight that educational content design and literacy development are key drivers of digital zakat adoption. This suggests that the focus should shift from simply improving platform usability to enhancing the quality of educational content and delivery methods.

The powerful influence of microlearning design on digital zakat literacy can be explained through several theoretical lenses. First, dual-coding theory suggests that bite-sized content allows for better processing of visual and textual information, which is crucial for complex zakat calculations and digital procedures. Second, spacing effect theory explains why distributed microcontent leads to better retention of zakat knowledge compared to traditional mass learning approaches.

The partial mediation effect observed in the study indicates that while microlearning design directly influences behavioral outcomes, the effect is amplified when it successfully builds digital zakat literacy and user engagement. These findings suggest that effective microlearning must go beyond simply miniaturizing content to create meaningful learning experiences that build knowledge and engagement.

### **Practical Implications**

The findings have significant implications for zakat institutions, educational technology developers, and policymakers. First, the model's strong predictive power ( $R^2$  values ranging from 0.374 to 0.603) suggests that investing in well-designed microlearning content can substantially increase digital zakat adoption. Given BAZNAS's target of collecting 30% of zakat through digital platforms, these findings provide an evidence-based approach to achieving this goal.

The mediating role of user engagement highlights the importance of interactive design elements in microlearning content. Zakat institutions should prioritize gamification, interactive

calculators, and personalized learning paths over static informational content. The finding that behavioral intentions strongly predict actual usage ( $\beta = 0.634$ ) suggests that well-designed microlearning interventions can translate into real behavior change.

### **Limitations and Directions for Future Research**

While this study provides valuable insights, several limitations should be acknowledged. The cross-sectional design limits causal inference, and future longitudinal studies could better establish temporal relationships between constructs. The sample, while representative of the smartphone generation, is primarily urban, potentially limiting generalizability to rural populations where digital zakat adoption faces different challenges.

Future research could explore the optimal characteristics of microlearning content for different demographic groups, investigate the role of social influence and cultural factors in the proposed model, and test the long-term sustainability of microlearning-induced behavioral changes in zakat payment behavior.

### **Conclusion and Suggestion**

This study confirms that microlearning content design has a significant impact on improving digital zakat literacy among the smartphone generation. Empirical results show that microlearning not only strengthens understanding of zakat but also increases user engagement, behavioral intentions, and encourages actual use of digital zakat platforms. User engagement has been shown to be a crucial mediator in strengthening the relationship between digital zakat literacy and adoption, making interactive and engaging educational content a key factor in success. Theoretically, this study extends the literature by connecting cognitive load theory, dual-coding theory, and spacing effect theory to the context of digital zakat education. Practically, the findings provide a basis for zakat institutions, educational technology developers, and policymakers to design effective, interactive, and microlearning-based educational strategies that meet the needs of the digital generation. However, this study has limitations due to its cross-sectional design and the predominance of urban respondents. Therefore, further research is needed with a longitudinal approach and a broader demographic scope to test the sustainability of microlearning's impact on digital zakat literacy and payment.

### **References**

- BAZNAS. (2024). *Indonesia Zakat Outlook 2025* (Vol. 9). Pusat Kajian Strategis Baznas.
- Blank, C. A. (2013). SAGE handbook of mixed methods in social & behavioral research. *Journal of Music Therapy*, 50(4), 321–325. <https://doi.org/10.1093/jmt/50.4.321>.
- Creswell, J. W., & Plano Clark, V. L. (2017). Designing and Conducting Mixed Methods Research. In *Encyclopedia of Research Design*. <https://bayanbox.ir/view/236051966444369258/9781483344379-Designing-and-Conducting-Mixed-Methods-Research-3e.pdf>.
- Ghofar, A., Fawwaz, M., Prestianawati, S. A., Mubarak, M. F., Manzilati, A., & Imamia, T. L. (2024).

- Young muslim generation's preferences for using digital platforms for Zakat payments: A cross-country study of Indonesia and Malaysia. *Journal of Infrastructure, Policy and Development*, 8(6), 1–29. <https://doi.org/10.24294/JIPD.V8I6.3249>.
- Hadi, A. (2018). Bridging Indonesia's Digital Divide: Rural-Urban Linkages? *Jurnal Ilmu Sosial Dan Ilmu Politik*, 22(1), 17. <https://doi.org/10.22146/jsp.31835>.
- Hadi, R., Sochimim, & Basit, A. (2021). Sharia strategic economic model on digital zakat technology in Indonesia. *Economic Annals-XXI*, 187(1–2), 82–89. <https://doi.org/10.21003/EA.V187-08>.
- Irwanto, I., & Irwansyah, I. (2020). Pendekatan Social Construction of Technology untuk Teknologi Pendidikan di Indonesia. *Media Komunikasi FPIPS*, 19(1), 28. <https://doi.org/10.23887/mkfis.v19i1.24184>.
- Johnson, R., & Onwuegbuzie, A. (2004). XXuU9b7ZeqJA32qS4cPX0pTTeO3eZR.pdf. *Educational Researcher*, 33(7), 14–26. <http://edr.sagepub.com/content/33/7/14.short>.
- Mckenney, S., & Reeves, T. (2012). *Conducting Educational Design Research*. <https://doi.org/10.4324/9781315105642>.
- Priyanto, P., & Suhandi, N. P. M. (2022). Indonesian Higher Education Institutions Competitiveness and Digital Transformation Initiatives. *JPI (Jurnal Pendidikan Indonesia)*, 11(1), 86–95. <https://doi.org/10.23887/jpi-undiksha.v11i1.34263>.
- Rahadi, R. A., Nainggolan, Y. A., Afgani, K. F., Yusliza, M. Y., Faezah, J. N., Ramayah, T., Saputra, J., Muhammad, Z., Farooq, K., & Angelina, C. (2022). Towards a cashless society: Use of electronic payment devices among generation z. *International Journal of Data and Network Science*, 6(1), 137–146. <https://doi.org/10.5267/J.IJDNS.2021.9.014>.
- Rahayu, R. (2022). Analisis Faktor-Faktor yang Mempengaruhi Tingkat Literasi Keuangan Digital-Studi pada Generasi Z di Indonesia . *Reviu Akuntansi Dan Bisnis Indonesia*, 6(1), 73–87. <https://doi.org/10.18196/rabin.v6i1.142682>.
- Samala, A. D., Bojic, L., Bekiroğlu, D., Watrinhos, R., & Hendriyani, Y. (2023). Microlearning: Transforming Education with Bite-Sized Learning on the Go—Insights and Applications. *International Journal of Interactive Mobile Technologies*, 17(21), 4–24. <https://doi.org/10.3991/ijim.v17i21.42951>.
- Venkatesh, V., Thong, J. y. ., & Xu, X. (2012). Consumer Acceptance and Use of Information Technology: Extending the Unified Theory of Acceptance and Use of Technology by Viswanath Venkatesh, James Y.L. Thong, Xin Xu :: SSRN. *MIS Quarterly*, 36(1), 157–178. [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2002388](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2002388).