



Analysis of Financial Literacy Publications Using Bibliometric Computation with Vosviewer Assistance

Muhammad Ismal^{1*}, Wahyu Sopandi², Hisny Fajrussalam³

^{1,2,3}Universitas Pendidikan Indonesia, Bandung, Indonesia

ARTICLE INFO	ABSTRACT
Article history: Submitted: Juny 5, 2026 Final Revised: July 25, 2026 Accepted: July 29, 2026 Published: July 31, 2026	Purpose: This study aims to analyze the trends, development, and characteristics of global scientific publications on financial literacy over a ten-year period (2014-2024) to address the limited availability of systematic scientific mapping using computational bibliometric approaches in this field Methods: The research utilized a quantitative bibliometric design, collecting metadata from 990 financial literacy articles indexed in Google Scholar via Harzing's Publish or Perish application. Data processing was conducted using Microsoft Excel, followed by computational mapping and network, density, and overlay visualization analysis using the VOSviewer application to examine co-citations and term relationships. Findings: The analysis revealed 990 publications with an unstable trend, peaking at 146 articles in 2023 and dropping to 115 in 2024, yielding 45,838 total citations, an h-index of 100, a g-index of 170, and an average of 2.59 authors per article. VOSviewer mapping identified 13 interconnected keyword clusters where "financial literacy," "role," and "analysis" form the highest density core, while emerging topics include financial technology, financial inclusion, and COVID-19 Research Implications: These findings provide a comprehensive reference for researchers to determine future research directions, specifically highlighting applied issues driven by social and technological changes, and offer stakeholders a foundation for integrating financial literacy into elementary school learning and educator roles. Originality: The study contributes a distinct ten-year computational mapping of financial literacy publications, successfully uncovering under-researched gaps such as the role of school counselors and high school teachers within the discipline.
Keywords: Bibliometric; Financial Literacy; Publish or Perish; Publication Trends.	
	
 	Doi: https://doi.org/10.61255/jupiter.v4i3.1301

INTRODUCTION

The development of 21st-century education demands strengthening essential competencies that not only focus on academic mastery but also on critical thinking skills, decision-making, and individuals' readiness to face the complexities of social and economic life. Modern education is directed toward building the quality of human resources that are adaptive and competitive through enhancing cognitive, affective, and behavioral capacities (Malik, 2018; Deming, 2022). In this context, literacy becomes a vital foundation for developing individuals' ability to understand and manage various aspects of life, including financial aspects. Financial literacy is understood as an individual's ability to understand financial concepts, manage economic resources wisely, and make responsible financial decisions. Several studies indicate that financial literacy has a significant relationship with financial well-being, financial behavior, and an individual's ability to plan for the future (Lusardi & Mitchell, 2023; Skagerlund et al., 2018). Conversely, low levels of financial literacy can potentially lead to various problems, such as poor economic decision-making, low savings ability, and increased financial risks, especially among young age groups.

The importance of strengthening financial literacy from an early age is also supported by various empirical findings that confirm financial education in elementary and middle schools can have a positive impact on students' knowledge, attitudes, and financial behaviors. Structured financial education interventions have been proven to improve understanding of financial concepts while also fostering healthier financial habits among children and adolescents (Batty et al., 2015; Bruhn et al., 2016). Additionally, experiential learning and habitual practice from an early age play a crucial role in building a foundation for long-term financial well-being (Drever et al., 2015). Along with the increasing attention to financial literacy, scientific studies in this field are also experiencing rapid development

and involve various disciplines. Research on financial literacy is not only examined from economic and financial perspectives but is also linked to education, psychology, behavior, technology, and diverse socio-cultural contexts (Levitt et al., 2016; Drake & Reid, 2018). The complexity and diversity of these approaches demand a systematic scientific mapping to understand the direction, focus, and trends of financial literacy research comprehensively.

Bibliometric analysis is one of the approaches widely used to map the development of scientific knowledge, identify dominant themes, and examine the relationships between concepts within a research field. This method allows researchers to analyze publication patterns, collaborations, and the dynamics of research topics based on extensively indexed scientific data (Nandiyanto & Al Husaeni, 2021). The use of VOSviewer software in bibliometric analysis has proven effective in visualizing keyword networks, temporal trends, and research topic density across various scientific disciplines (Ding & Yang, 2022). Previous bibliometric studies have successfully mapped the development of research across various fields of study, such as blockchain technology (Kuzior & Sira, 2022). Several studies have employed bibliometric analysis to map trends and emerging trends of artificial intelligence in healthcare: a bibliometric outlook (Almeida, M. I., Rosa, A., & Pestana, H. C. F. C., 2024). Additionally, the bibliometric approach is also used to analyze publications in technology and innovation fields,

In the context of social sciences and economics, bibliometric analysis is widely used to study topics such as financial literacy, financial well-being, service innovation, business resilience, as well as bioenergy and sustainable agriculture (Lusardi & Mitchell, 2023). In the field of education, bibliometric studies are also used to map research related to integrated curriculum, 21st-century education, literacy, STEM, parental involvement, and the effectiveness of educational interventions (Drake & Reid, 2018; English, 2016; Malik, 2018; Park & Holloway, 2017). Furthermore, this approach has been widely applied to analyze global scientific publications related to the COVID-19 pandemic and various other multidisciplinary issues (Serrano-Orellana, B et al., 2025). However, studies on publication analysis in the field of financial literacy using computational bibliometric approaches remain very limited. To date, there have not been many studies specifically mapping financial literacy publications over the past ten years, from 2014 to 2024. This gap creates a critical need for a comprehensive evaluation of how global research interest has evolved, what themes dominate, and where future directions lie. Based on this condition, this research aims to analyze financial literacy articles indexed in Google Scholar using bibliometric computational methods with the help of VOSviewer software. The results of this study are expected to serve as a comprehensive reference for future researchers in determining strategic research directions and sub-themes, particularly in identifying under-researched areas within the field of financial literacy.

METHOD

This study employed a quantitative research design with a computational bibliometric analysis approach to map and evaluate the structural dynamics of scientific publications in the field of financial literacy. The data source for this research comprised academic literature indexed in the Google Scholar database, which was selected due to its comprehensive coverage and accessibility of publications regarding community financial competencies. The population of data included all scientific articles containing the keyword "Financial Literacy" in their metadata. A purposive sampling method was applied to determine the research data sample based on strict inclusion criteria: the articles must be directly relevant to the core topic, published within a ten-year timeline from 2014 to 2024, and the complete metadata retrieval must be finalized by December 2024. Through this filtering process, a total sample of 990 relevant articles was extracted for further evaluation.

The data collection instrument and procedure were systematically carried out using Harzing's Publish or Perish software, which served as the primary tool to retrieve, codify, and filter the article metadata from the database. The retrieval process captured crucial publication attributes, including author names, article titles, publication years, journal names, publishers, citation counts, and respective URLs. Once the metadata extraction was complete, the gathered data were exported into two distinct file formats: Research Information System (.ris) for mapping and Comma-Separated Values (.csv) for statistical profiling.

The data analysis technique involved two integrated phases: descriptive statistical profiling and computational bibliometric mapping. In the first phase, Microsoft Excel was utilized to process the .csv files to calculate total publications, annual distribution, and descriptive citation metrics including the h-index and g-index. In the second phase, the .ris files were imported into the VOSviewer application to perform network analysis based on co-citation and co-occurrence of terms. VOSviewer generated three variations of bibliometric visualizations to unveil research gaps: network visualization to analyze the interconnectedness between topics, density visualization to observe the

frequency of specific research themes, and overlay visualization to evaluate the chronological novelty of keywords across the ten-year period.

RESULTS

Data exploration through Harzing's Publish or Perish application from the Google Scholar database retrieved 990 articles matching the specified criteria. The extracted dataset accumulated a total of 45,838 citations over an eleven-year citation period (2014-2025). The complete citation metrics generated from the software extraction are detailed in Figure 1.

Citation metrics	Help
Publication years:	2014-2024
Citation years:	11 (2014-2025)
Papers:	990
Citations:	45838
Cites/year:	4167.09
Cites/paper:	46.30
Cites/author:	23302.75
Papers/author:	480.09
Authors/paper:	2.59
h-index:	100
g-index:	170
hI,norm:	70
hI,annual:	6.36
hA-index:	37
Papers with ACC >= 1,2,5,10,20:	882,761,530,286,113

Figure 1. Citation Metrics of Financial Literacy Publications from Google Scholar Database via Publish or Perish

The statistical data in Figure 1 reveals an average of 4,167.09 citations per year and 46.30 citations per article, alongside an average of 23,302.75 citations per author. The dataset demonstrates a high level of academic impact, indicated by an h-index of 100 and a g-index of 170. The collaboration density shows an average of 480.09 papers per author and 2.59 authors per paper. To provide an initial overview of the most impactful literature within this corpus, the structural profiles and citation metrics of the 21 highest-cited articles are compiled in Table 1.

Table 1. Financial Literacy Publication Data

Nu	Author	Title	Year	Qoute	Reference
1	LD English	STEM education K-12: Perspectives on integration	2016	1712	(English, 2016)
2	M Behrendt, T Franklin	A review of research on school field trips and their value in education.	2014	990	(Behrendt & Franklin, 2014)
3	RS Malik	Educational challenges in 21st century and sustainable development	2018	821	(Malik, 2018)
4	SD Levitt, JA List, S Neckermann, ...	The behavioralist goes to school: Leveraging behavioral economics to improve educational performance	2016	597	(Levitt et al., 2016)
5	BN York, S Loeb, C Doss	One step at a time: The effects of an early literacy text-messaging program for parents of preschoolers	2019	447	(York et al., 2019)
6	J McLeskey, NL Waldron, ...	A case study of a highly effective, inclusive elementary school	2014	446	(McLeskey et al., 2014)
7	SM Drake, JL Reid	Integrated curriculum as an effective way to teach 21st century capabilities	2018	426	(Drake & Reid, 2018)
8	TV Duong, A Aringazina, G Baisunova, ...	Measuring health literacy in Asia: Validation of the HLS-EU-Q47 survey tool in six Asian countries	2017	423	(Duong et al., 2017)
9	K Skagerlund, T Lind, C Strömbäck, G Tinghög, ...	Financial literacy and the role of numeracy– How individuals' attitude and affinity with numbers influence financial literacy	2018	420	(Skagerlund et al., 2018)
10	A Lusardi, OS Mitchell	The importance of financial literacy: Opening a new field	2023	419	(Lusardi & Mitchell, 2023)

Nu	Author	Title	Year	Qoute	Reference
11	AI Drever, E Odders-White, CW Kalish, ...	Foundations of financial well-being: Insights into the role of executive function, financial socialization, and experience-based learning in childhood and youth	2015	417	(Drever et al., 2015)
12	M Llopart, M Esteban-Guitart	Funds of knowledge in 21st century societies: Inclusive educational practices for under-represented students. A literature review	2018	372	(Llopart & Esteban-Guitart, 2018)
13	M Batty, JM Collins, ...	Experimental evidence on the effects of financial education on elementary school students' knowledge, behavior, and attitudes	2015	370	(Batty et al., 2015)
14	S Alan, S Ertac	Fostering patience in the classroom: Results from randomized educational intervention	2018	366	(Alan & Ertac, 2018)
15	K Tirri	The last 40 years in Finnish teacher education	2014	345	(Tirri, 2014)
16	DJ Deming	Four facts about human capital	2022	344	(Deming, 2022)
17	S Park, SD Holloway	The effects of school-based parental involvement on academic achievement at the child and elementary school level: A longitudinal study	2017	338	(Park & Holloway, 2017)
18	E Solak, R Cakir	Exploring the Effect of Materials Designed with Augmented Reality on Language Learners' Vocabulary Learning.	2015	321	(Solak & Cakir, 2015)
19	AC Graesser, DS McNamara, Z Cai, ...	Coh-Metrix measures text characteristics at multiple levels of language and discourse	2014	298	(Graesser et al., 2014)
20	M Bruhn, L de Souza Leão, A Legovini, ...	The impact of high school financial education: Evidence from a large-scale evaluation in Brazil	2016	291	(Bruhn et al., 2016)
21	CD Robinson, MG Lee, E Dearing, ...	Reducing student absenteeism in the early grades by targeting parental beliefs	2018	288	(Robinson et al., 2018)

The chronological distribution of the 990 articles mapped from 2014 to 2024 is structured in Table 2, highlighting the baseline and specific annual growth rates within the decade.

Table 2. Annual Publication Distribution from 2014 to 2024

Year	Number of Publication
2014	52
2015	54
2016	48
2017	57
2018	75
2019	97
2020	95
2021	122
2022	129
2023	146
2024	115
Total	990
Average	90

To examine the internal semantic and thematic structure of the dataset, VOSviewer computational mapping identified 499 strongly related keywords, which were automatically categorized into 13 distinct thematic clusters. Figure 2 presents the network visualization, highlighting the distance and co-occurrence linkages between these core nodes.

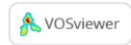


Figure 2. Network Visualization of Financial Literacy Keywords

The network mapping reveals that the term "financial literacy" occupies the absolute center with the largest node diameter, exhibiting direct linkages to adjacent nodes such as "role," "analysis," and "financial behavior". To analyze the concentration and distribution density of these terms, Figure 3 captures the dataset using a color gradient map.



Figure 3. Network Visualization of Financial Literacy Keywords

The density visualization highlights bright yellow regions concentrated around "financial literacy," "role," and "financial capability," whereas peripheral regions fading into green and blue depict low-density items, including "school counselor" and "high school teacher". Lastly, to track the chronological evolution of these research terms, Figure 4 illustrates the overlay visualization based on the temporal distribution of keywords over the decade.

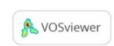


Figure 4. Overlay Visualization of Financial Literacy Keywords

The overlay map shows earlier publication keywords colored in deep purple and blue, while modern nodes appearing within the green and bright yellow spectrum include terms such as "financial technology" (fintech), "financial inclusion," and "COVID-19".

DISCUSSION

The empirical results generated from the bibliometric computational mapping present several critical interpretations regarding the structural trajectory of financial literacy literature. The robust metric values extracted in Figure 1, specifically the h-index of 100 and g-index of 170, confirm that research within this domain has achieved widespread scientific consensus and rigorous scholarly impact over the last ten years. However, the longitudinal data compiled in Table 2 reveals that the field suffers from structural instability. The steady baseline observed between 2014 and 2017 indicates a period of fundamental consolidation, which subsequently triggered an aggressive expansion peaking in 2023. This peak reflects a global educational shift that recognizes financial competence as an indispensable 21st-century skill, aligning with the theoretical arguments of Malik (2018) and Deming (2022) regarding the necessity of adaptive human resource capabilities. Conversely, the sharp decline observed in 2024 signals a potential saturation point or temporary diversion of research momentum, suggesting that traditional bibliometric models in this field may require expansion.

Integrating these findings into the broader structure of science, the sample profiles highlighted in Table 1 reveal that the high scientific impact of financial literacy does not exist in isolation; rather, it is highly cross-disciplinary. The presence of top-cited publications intersecting with integrated STEM frameworks (English, 2016), school field trips (Behrendt & Franklin, 2014), behavioral economics (Levitt et al., 2016), and early literacy text-messaging (York et al., 2019) demonstrates that financial competence is deeply embedded within broader educational innovations and structural sociology.

The primary novelty uncovered in this study lies in the structural friction visualized between the network density and the chronological overlay map. While Figure 2 and Figure 3 confirm that traditional behavioral outcomes and general capability analyses form the heavily investigated, highly saturated core of the discipline, the fading peripheral zones unveil critical research gaps. The low density surrounding the nodes "school counselor" and "high school teacher" exposes a missing link in current educational literature. This structural void indicates that while scholars extensively study the macroscopic effects of financial literacy, the microscopic, tactical execution frameworks specifically the professional roles of primary/secondary school educators and localized counseling interventions remain heavily under-researched.

Furthermore, the overlay visualization in Figure 4 demonstrates a profound conceptual transformation within the discipline's structure. The clear temporal shift from traditional classroom concepts (purple/blue nodes) toward applied, technologically driven keywords such as "financial technology" (fintech) and "financial inclusion" (yellow nodes) indicates that the boundaries of financial literacy are rapidly evolving. This evolutionary pattern implies that modern financial competence is no longer restricted to static ledger-balancing or basic saving behavior as explored in early childhood studies (Drever et al., 2015; Batty et al., 2015); instead, it has pivoted toward adaptive digital interactions forced by recent global socio-economic shocks like the COVID-19 pandemic.

For practical and theoretical implications, these findings provide a strategic blueprint for policymakers and academic institutions. Rather than repeating saturated studies on general financial attitudes, future research and curriculum designs must deliberately focus on these newly identified open spaces, specifically targeting the professional capacity of educators and the integration of digital fintech literacy within standardized basic education ecosystems.

CONCLUSION

This study has successfully achieved its objective to map the ten-year evolution of global financial literacy research from 2014 to 2024 using a computational bibliometric approach. Based on the empirical data extracted from 990 articles, this field has established a robust scientific foundation, accumulating 45,838 total citations with a high h-index of 100 and a g-index of 170. The data proves that publication trends expanded significantly to peak at 146 articles in 2023 before experiencing a sudden decline to 115 publications in 2024, indicating a recent instability in research

momentum. Furthermore, the computational mapping identified 13 distinct thematic clusters where "financial literacy," "role," and "financial capability" form the absolute, highly saturated core of the discipline. The temporal overlay data confirms a decisive structural transformation, showing that scholarly focus has shifted from traditional classroom behavioral concepts toward digitalized, applied domains including financial technology (fintech), financial inclusion, and operational responses to the COVID-19 pandemic.

The structural density analysis uncovers a critical, data-supported research gap, revealing that peripheral nodes such as "school counselor" and "high school teacher" possess the lowest research saturation within the entire dataset. Based on this specific finding, the follow-up recommendation for future research should move away from macro-analyses of general financial attitudes and instead focus on the tactical execution of financial education. Future investigators are urged to design empirical studies that investigate the professional readiness of primary and secondary school educators, evaluate the integration of fintech modules within standard school counseling frameworks, and expand the bibliometric spectrum by conducting comparative metadata analyses using alternative high-impact databases such as Scopus and Web of Science.

REFERENCE

- Alan, S., & Ertac, S. (2018). Fostering patience in the classroom: Results from randomized educational intervention. *Journal of Political Economy*, *Query date: 2025-11-22 10:17:21*. <https://doi.org/10.1086/699007>
- Almeida, M. I., Rosa, A., & Pestana, H. C. F. C. (2024). Emerging trends of artificial intelligence in healthcare: a bibliometric outlook. *International Journal of Healthcare Technology and Management*, *21*(1), 49-78. <https://doi.org/10.1504/IJHTM.2024.136548>
- Batty, M., Collins, J., & ... (2015). Experimental evidence on the effects of financial education on elementary school students' knowledge, behavior, and attitudes. *Journal of Consumer ...*, *Query date: 2025-11-22 10:17:21*. <https://doi.org/10.1111/joca.12058>
- Behrendt, M., & Franklin, T. (2014). A review of research on school field trips and their value in education. *International Journal of Environmental and Science ...*, *Query date: 2025-11-22 10:17:21*. <https://eric.ed.gov/?id=EJ1031445>
- Bruhn, M., Leão, L. de S., Legovini, A., & ... (2016). The impact of high school financial education: Evidence from a large-scale evaluation in Brazil. ... *Economic Journal ...*, *Query date: 2025-11-22 10:17:21*. <https://www.aeaweb.org/articles?id=10.1257/app.20150149>
- Deming, D. (2022). Four facts about human capital. *Journal of Economic Perspectives*, *Query date: 2025-11-22 10:17:21*. <https://doi.org/10.1257/jep.36.3.75>
- Ding, X., Yang, Z. Knowledge mapping of platform research: a visual analysis using VOSviewer and CiteSpace. *Electron Commer Res* *22*, 787–809 (2022). <https://doi.org/10.1007/s10660-020-09410-7>
- Drake, S., & Reid, J. (2018). Integrated curriculum as an effective way to teach 21st century capabilities. *Asia Pacific Journal of Educational Research*, *Query date: 2025-11-22 10:17:21*. https://www.researchgate.net/profile/SusanDrake/publication/324250557_Integrated_Curriculum_as_an_Effective_Way_to_Teach_21st_Century_Capabilities/links/5afc7e60a6fdcc3a5a273005/Integrated-Curriculum-as-an-Effective-Way-to-Teach-21st-Century-Capabilities.pdf
- Drever, A., Odders-White, E., Kalish, C., & ... (2015). Foundations of financial well-being: Insights into the role of executive function, financial socialization, and experience-based learning in childhood and youth. *Journal of Consumer ...*, *Query date: 2025-11-22 10:17:21*. <https://doi.org/10.1111/joca.12068>
- Duong, T., Aringazina, A., Baisunova, G., & ... (2017). Measuring health literacy in Asia: Validation of the HLS-EU-Q47 survey tool in six Asian countries. *Journal of ...*, *Query date: 2025-11-22 10:17:21*. https://www.jstage.jst.go.jp/article/jea/27/2/27_JE11/_article/-char/ja/
- English, L. (2016). STEM education K-12: Perspectives on integration. *International Journal of STEM Education*, *Query date: 2025-11-22 10:17:21*. <https://doi.org/10.1186/s40594-016-0036-1>
- Graesser, A., McNamara, D., Cai, Z., & ... (2014). Coh-Metrix measures text characteristics at multiple levels of language and discourse. ... *Elementary School ...*, *Query date: 2025-11-22 10:17:21*. <https://doi.org/10.1086/678293>
- Kuzior, A., & Sira, M. (2022). A bibliometric analysis of blockchain technology research using VOSviewer. *Sustainability*, *14*(13), <https://doi.org/10.3390/su14138206>

- Levitt, S., List, J., Neckermann, S., & ... (2016). The behavioralist goes to school: Leveraging behavioral economics to improve educational performance. ... *Economic Journal* ..., Query date: 2025-11-22 10:17:21. <https://www.aeaweb.org/articles?id=10.1257/pol.20130358>
- Llopart, M., & Esteban-Guitart, M. (2018). Funds of knowledge in 21st century societies: Inclusive educational practices for under-represented students. A literature review. *Journal of Curriculum Studies*, Query date: 2025-11-22 10:17:21. <https://doi.org/10.1080/00220272.2016.1247913>
- Lusardi, A., & Mitchell, O. (2023). The importance of financial literacy: Opening a new field. *Journal of Economic Perspectives*, Query date: 2025-11-22 10:17:21. <https://doi.org/10.1257/jep.37.4.137>
- Malik, R. (2018). Educational challenges in 21st century and sustainable development. *Journal of Sustainable Development Education and ...*, Query date: 2025-11-22 10:17:21. <https://ejournal.upi.edu/index.php/jsder/article/view/12266>
- McLeskey, J., Waldron, N., & ... (2014). A case study of a highly effective, inclusive elementary school. *The Journal of Special ...*, Query date: 2025-11-22 10:17:21. <https://doi.org/10.1177/0022466912440455>
- Nandiyanto, A. B. D., & Al Husaeni, D. F. (2021). A bibliometric analysis of materials research in Indonesian journal using VOSviewer. *Journal of Engineering Research*. <https://doi.org/10.36909/jer.ASSEEE.16037>
- Park, S., & Holloway, S. (2017). The effects of school-based parental involvement on academic achievement at the child and elementary school level: A longitudinal study. *The Journal of Educational Research*, Query date: 2025-11-22 10:17:21. <https://doi.org/10.1080/00220671.2015.1016600>
- Robinson, C., Lee, M., Dearing, E., & ... (2018). Reducing student absenteeism in the early grades by targeting parental beliefs. ... *Research Journal*, Query date: 2025-11-22 10:17:21. <https://doi.org/10.3102/0002831218772274>
- Serrano-Orellana, B., Sotomayor-Pereira, J. G., Riofrio Orozco, O. G., Brito-Gaona, L., Alvarez-Muñoz, P., & Faytong-Haro, M. (2025, August). Reshaping research in crisis: bibliometric analysis of Ecuadorian public universities during COVID-19 (2019–2021). In *Frontiers in Education* (Vol. 10, p. 1610777). Frontiers Media SA. <https://doi.org/10.3389/educ.2025.1610777>
- Skagerlund, K., Lind, T., Strömbäck, C., Tinghög, G., & ... (2018). Financial literacy and the role of numeracy—How individuals' attitude and affinity with numbers influence financial literacy. *Journal of Behavioral ...*, Query date: 2025-11-22 10:17:21. <https://www.sciencedirect.com/science/article/pii/S2214804318301241>
- Solak, E., & Cakir, R. (2015). Exploring the Effect of Materials Designed with Augmented Reality on Language Learners' Vocabulary Learning. *Journal of Educators Online*, Query date: 2025-11-22 10:17:21. <https://eric.ed.gov/?id=EJ1068381>
- Tirri, K. (2014). The last 40 years in Finnish teacher education. *Journal of Education for Teaching*, Query date: 2025-11-22 10:17:21. <https://doi.org/10.1080/02607476.2014.956545>
- York, B., Loeb, S., & Doss, C. (2019). One step at a time: The effects of an early literacy text-messaging program for parents of preschoolers. *Journal of Human Resources*, Query date: 2025-11-22 10:17:21. <https://jhr.uwpress.org/content/54/3/537>

*** Muhammad Ismal (Corresponding Author)**

Universitas Pendidikan Indonesia,
Jl. Dr. Setiabudi No.229, Isola, Kec. Sukasari, Kota Bandung, Jawa Barat 40154
Email: ismail338@upi.edu

Wahyu Sopandi

Universitas Pendidikan Indonesia,
Jl. Dr. Setiabudi No.229, Isola, Kec. Sukasari, Kota Bandung, Jawa Barat 40154
Email: wsopandi@upi.edu

Hisny Fajrussalam

Universitas Pendidikan Indonesia,
Jl. Dr. Setiabudi No.229, Isola, Kec. Sukasari, Kota Bandung, Jawa Barat 40154
Email: hfajrussalam@upi.edu