Journal of General Education and Humanities
Vol. 5, No. 6, December 2026, pp. 7493 – 7500, https://doi.org/10.58421/gehu.v5i6.1915
ISSN 2963-7147

An Andragogy–Geragogy Integrative Online Learning Model for Older Adults: A Mixed-Methods Pilot Study

Suryadi[1], Mustofa Kamil[2], Asep Saepudin[3], Iip Saripah[4], Reza Oktiana Akbar[5], Deti Nudiati[6]
[1,5]UIN Siber Syekh Nurjati Cirebon, Indonesia
[2,3,4]Universitas Pendidikan Indonesia, Bandung, Indonesia
[6]University of College Cork, Cork City, Ireland

Article Info

Article history:

Received 2026-07-22
Revised 2026-08-02
Accepted 2026-11-16

Keywords:

Andragogy
Educational Gerontology
Geragogy
Lifelong Learning
Online Learning
Spiritual Gerotranscendence

ABSTRACT

Lifelong learning for middle-aged and older adults requires online learning designs that accommodate learner autonomy, age-related cognitive and sensory changes, and personally meaningful motivation. This quantitative-dominant embedded mixed-methods, one-group pretest–posttest pilot study examined an Andragogy–Geragogy Integrative (AGI) online learning model in a community-based Islamic lifelong-learning program. Twenty-five purposively selected participants aged 45 years and above completed six online learning sessions delivered through mobile-accessible media. Quantitative data were collected using a validated 20-item questionnaire, while qualitative reflection sheets were embedded in Phases F5 and F6. Because the normality assumption was not met, scores were analyzed using the Wilcoxon signed-rank test. Scores increased from pretest (M = 68.16, SD = 14.34) to posttest (M = 86.52, SD = 9.85), representing a mean gain of 18.36 points, z = −4.197, p < .001, r = .84, with a bootstrap 95% CI [14.68, 21.88]. Reflection outcomes were also positive: Mumtaz = 9 participants, Jayyid Jiddan = 11, Jayyid = 4, and Maqbul = 1. The findings provide preliminary evidence that the AGI model is feasible for supporting learning continuity and spiritually meaningful engagement. Interpretation remains cautious because of the small sample, absence of a comparison group, and reliance on self-reported and rubric-based measures.

This is an open-access article under the CC BY-SA license.

Corresponding Author:

Suryadi
UIN Siber Syekh Nurjati Cirebon, Indonesia
Email: suryadi@uinssc.ac.id

1. INTRODUCTION

The global demographic shift toward an aging population has made educational interventions for older adults an important part of lifelong learning [1], [2]. Online learning can expand access to religious, social, and personal-development learning opportunities

[3], but older learners often encounter barriers related to technology anxiety, cognitive processing speed, interface complexity, and limited confidence in digital environments [4]–[7]. These barriers indicate that online lifelong learning for older adults cannot be designed only as technology transfer. It requires a learning model that combines adult learner autonomy, age-sensitive instructional accommodation, and personally meaningful motivation.

This study focuses on an Andragogy–Geragogy Integrative (AGI) online learning model for middle-aged and older learners. Andragogy refers to adult-learning principles that emphasize self-direction, prior experience, readiness to learn, problem orientation, and internal motivation [8]–[10]. Geragogy refers to educational approaches specifically adapted to older learners by considering sensory, cognitive, physiological, and psychosocial characteristics of later life [11], [12]. In the present model, the integrative component is not proposed as a separate learning theory. It is an operational synthesis that connects andragogical autonomy, geragogical accommodation, accessible digital media, and Islamic spiritual reflection to support learning continuity and spiritual meaning-making [13].

Several constructs guide the model. Learning continuity refers to learners' sustained participation, task completion, willingness to continue learning, and perceived ability to follow online learning activities. Technological anxiety refers to apprehension, insecurity, or avoidance experienced when using digital tools. Cognitive load refers to the mental effort required to process learning tasks; in older adult online learning, unnecessary interface complexity may increase extraneous cognitive load [14]. Spiritual gerotranscendence refers to an older learner's reflective movement toward deeper meaning, acceptance, connectedness, and spiritual tranquility in later life [15]. The AGI model assumes that geragogical features such as simplified instructions, slower pacing, repetition, and accessible interfaces may reduce unnecessary cognitive burden; spiritual content may strengthen intrinsic motivation; and stronger motivation may support learning continuity.

The inclusion of participants aged 45–59 as middle-aged or pre-elderly learners is based on the assumption that this period represents a transition toward later adulthood, when changes in cognitive processing, sensory comfort, and digital confidence may begin to influence learning participation [6]. Therefore, the model was designed not only for older adults in a narrow chronological sense, but also for learners entering the transition phase toward older adulthood. This classification should be interpreted contextually and cautiously because age categories vary across countries, institutions, and academic disciplines.

The AGI intervention consists of six instructional phases. Phase F1, Orientation and Digital Readiness, introduces participants to the online platform and learning expectations. Phase F2, Guided Access and Modeling, demonstrates how to access learning materials using simplified steps. Phase F3, Andragogical Exploration, encourages learners to relate materials to prior experience and personal goals. Phase F4, Geragogical Reinforcement, provides repetition, slower tempo, visual clarity, and facilitator support. Phase F5, Internalization and Spiritual Reflection, invites participants to connect learning

activities with Islamic values, life meaning, and gratitude. Phase F6, Motivation Reinforcement and Recognition, provides recognition of learning progress and reinforces learners' confidence to continue learning. Figure 1 presents the Input–Process–Output–Feedback (IPOF) structure of the AGI model.

This pilot study addressed two research questions: (1) How did participants' learning-continuity scores change after participating in the AGI online learning model? (2) What spiritual-reflection outcomes emerged from Phases F5 and F6 of the model? By addressing these questions, the study contributes to educational gerontology and community education by offering a preliminary model for combining learner autonomy, age-sensitive online instruction, accessible digital features, and spiritually meaningful learning content.

2. METHOD

2.1. Research Design

This study employed an embedded mixed-methods one-group pretest–posttest pilot design [16]. The quantitative component was dominant and measured changes in participants' learning-continuity scores before and after the intervention. The qualitative component was embedded within the intervention through reflection sheets collected during Phase F5 and Phase F6. This design was selected because the study aimed not only to estimate preliminary quantitative change, but also to capture participants' spiritual reflection and motivation after engaging with the model. The study was pre-experimental because it did not include a comparison group or random assignment.

2.2. Participants and Context

The study involved 25 active participants from a community-based Islamic lifelong-learning program. Participants represented middle-aged/pre-elderly and older adult groups, with the lower age boundary set at 45 years to capture the transition toward later adulthood. Participants were selected purposively because they were active learners and completed the online learning activities. The intervention consisted of six online learning sessions delivered through mobile-accessible media. The specific platform name should be confirmed by the authors before resubmission.

2.3. Intervention Procedure

The AGI model was implemented using an IPOF system. The input stage identified learners' age-related needs, digital readiness, prior learning experience, and spiritual-learning goals. The process stage consisted of six phases: F1 Orientation and Digital Readiness; F2 Guided Access and Modeling; F3 Andragogical Exploration; F4 Geragogical Reinforcement; F5 Internalization and Spiritual Reflection; and F6 Motivation Reinforcement and Recognition. The output stage included learning-continuity scores and spiritual-reflection outcomes. The feedback stage involved facilitator observation, participant reflection, and recognition of learning progress. The andragogical component supported autonomy and relevance, the geragogical component accommodated slower

pacing and accessible design, and the integrative component connected online learning with Islamic spiritual meaning.

2.4. Instruments and Data Collection

Quantitative data were collected using a 20-item questionnaire measuring perceived learning continuity in the AGI online learning model. The questionnaire was administered before and after the intervention. Content validity was assessed using Aiken's V [17]. Internal consistency in the present dataset was high at pretest (Cronbach's $\alpha = .945$) and posttest ($\alpha = .943$) [18]. Qualitative data were collected from participant reflection sheets during Phase F5 and Phase F6. The reflection sheets focused on spiritual meaning, motivation, confidence, and willingness to continue learning.

2.5. Data Analysis

Descriptive statistics summarized the participant-level mean scores across the 20 items. Normality was examined using the Shapiro–Wilk test. Because the normality assumption was not met, the Wilcoxon signed-rank test compared paired pretest and posttest scores. Two participants had zero change, leaving 23 non-zero pairs for the signed-rank calculation. The minimum signed-rank statistic (W) and exact two-sided p-value were reported. Effect size was calculated as $r = |z|/\sqrt{n}$ [19], and a bootstrap 95% confidence interval based on 20,000 resamples was calculated for the mean difference. Qualitative reflection data were coded into four rubric categories: Mumtaz (Excellent), Jayyid Jiddan (Very Good), Jayyid (Good), and Maqbul (Acceptable). These categories represented combined spiritual-reflection and motivational achievement rather than formal graduation status.

3. RESULTS

3.1. Architecture of the AGI-Based Online Learning Model

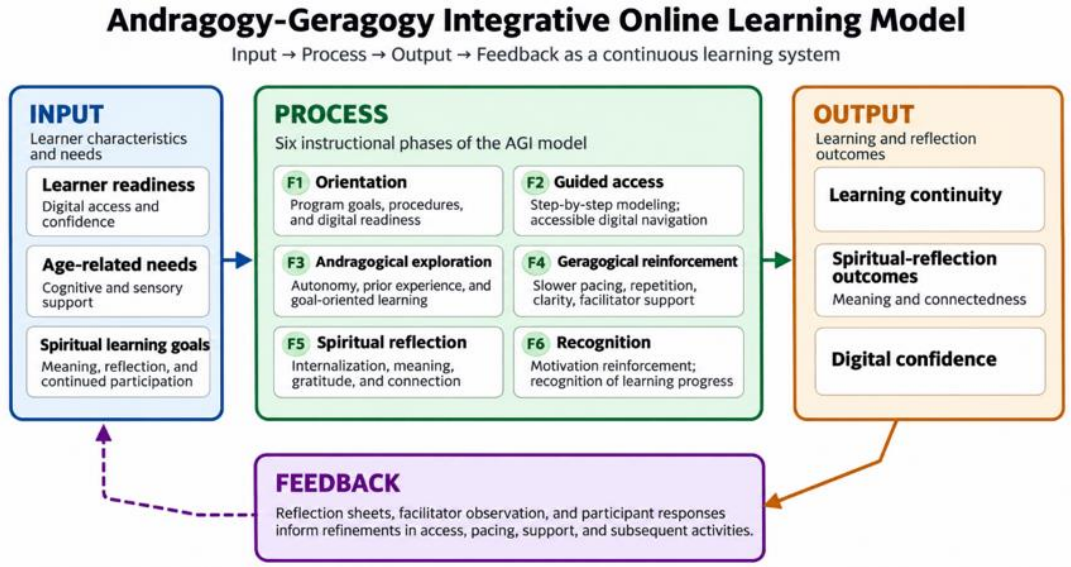


Figure 1. Input–Process–Output–Feedback (IPOF) framework of the Andragogy–Geragogy Integrative (AGI) online learning model

Note. AGI refers to Andragogy–Geragogy Integrative, while IPOF denotes Input–Process–Output–Feedback.
Source: Developed by the authors.

Figure 1 illustrates the Input–Process–Output–Feedback (IPOF) system flow of the AGI model. Learner readiness, age-related needs, and spiritual learning goals provide the inputs for six instructional phases: F1 Orientation, F2 Guided Access, F3 Andragogical Exploration, F4 Geragogical Reinforcement, F5 Spiritual Reflection, and F6 Recognition. These phases generate learning-continuity, spiritual-reflection, and digital-confidence outcomes, followed by feedback for continuous improvement.

3.2. Spiritual-Reflection Outcomes in Phases F5 and F6

The qualitative-quantitative rubric used in Phases F5 and F6 showed generally positive spiritual-reflection and motivation outcomes. The distribution was as follows: Mumtaz (Excellent) = 9 participants; Jayyid Jiddan (Very Good) = 11 participants; Jayyid (Good) = 4 participants; and Maqbul (Acceptable) = 1 participant. These categories represent participants' combined spiritual-reflection and motivational achievement after the intervention.

Participants' reflections suggested that online religious learning supported both digital confidence and spiritual meaning. One representative reflection stated: "The ability to operate online applications to study religious materials makes me feel that I am not left behind by the times and brings me closer to spiritual values." This statement indicates that participants perceived the model not only as digital-skills support, but also as a meaningful way to maintain spiritual engagement and learning participation.

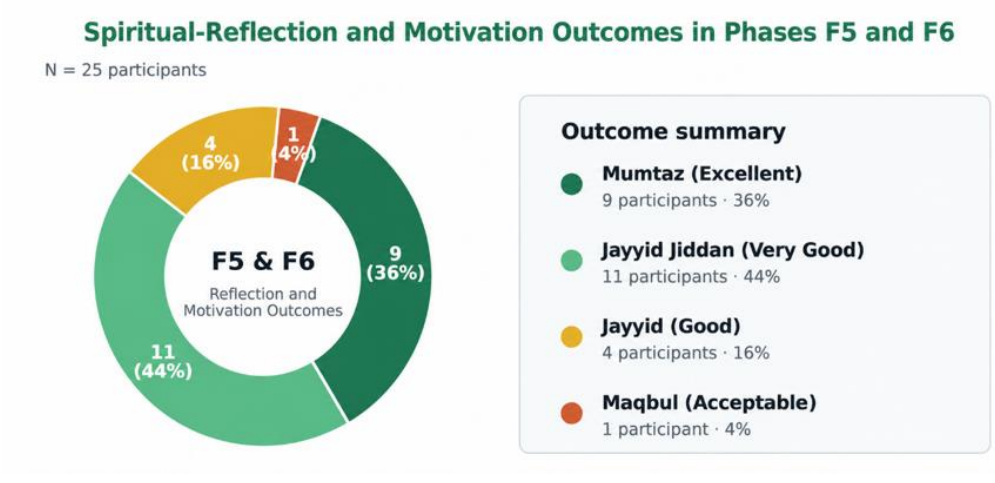


Figure 2. Distribution of spiritual-reflection and motivation outcomes in Phases F5 and F6 of the Andragogy–Geragogy Integrative (AGI) online learning model.

Note. F5 refers to Internalization and Spiritual Reflection, while F6 denotes Motivation Reinforcement and Recognition. The categories represent combined rubric-based achievements in spiritual reflection and motivation rather than formal graduation status.

Based on the reflection sheets in Phase F5, participants expressed that the learning process provided inner peace. A dominant qualitative statement recorded was: "The ability to operate online applications to study religious materials makes me feel that I am not left behind by the times and brings me closer to spiritual values." This finding objectively proves the effectiveness of the model's recognition phase.

3.3. Statistical Effectiveness Test

The Shapiro–Wilk test indicated that the normality assumption was not fully met for the pretest–posttest difference scores. Therefore, the Wilcoxon signed-rank test was used. Participant scores increased from pretest (M = 68.16, SD = 14.34, Mdn = 67.00) to posttest (M = 86.52, SD = 9.85, Mdn = 87.00). The mean gain was 18.36 points, with a bootstrap 95% CI [14.68, 21.88]. The increase was statistically significant, $z = -4.197$, $p < .001$, with a large effect size, $r = .84$ ($r = |z|/\sqrt{N}$, $N = 25$).

Table 1. Pretest and Posttest Learning-Continuity Scores

Measure	M	SD	Mdn	z	p	r
Pretest	68.16	14.34	67.00	—	—	—
Posttest	86.52	9.85	87.00	−4.197	< .001	.84

Note. Scores are total scores across 20 questionnaire items. M = mean; SD = standard deviation; Mdn = median; z = standardized Wilcoxon signed-rank statistic; r = effect size; CI = confidence interval. The bootstrap 95% CI for the mean gain was [14.68, 21.88].
Source: Authors' analysis of the research data (2026).

4. DISCUSSION

This study provides preliminary evidence that the AGI online learning model is feasible for supporting learning continuity among middle-aged and older learners. Quantitatively, scores increased from 68.16 to 86.52, a mean gain of 18.36 points, with a large effect size (r = .84) and a bootstrap 95% CI [14.68, 21.88]. Qualitatively, 20 of 25 participants (80%) were categorized at the Very Good or Excellent levels for combined spiritual-reflection and motivation outcomes. The quantitative and qualitative evidence therefore converged in suggesting positive change in learning participation and spiritually meaningful engagement, although the pre-experimental design does not establish causality.

The findings should be interpreted in relation to the model's theoretical structure. The andragogical component may have supported learner autonomy and relevance by connecting online learning activities with participants' prior experience and personal goals [8], [9]. The geragogical component may have made the digital learning process more accessible through simplified instructions, repetition, and slower pacing [11], [12]. These design features may theoretically reduce extraneous cognitive load, although cognitive load was not directly measured in this study. Therefore, the claim should be understood as a theoretical interpretation rather than an empirical finding.

The integrative spiritual component may have strengthened intrinsic motivation by connecting digital learning with Islamic values, reflection, gratitude, and meaning-making. This interpretation is consistent with gerotranscendence theory, which views later life as a period in which spiritual reflection and existential meaning become increasingly important [15]. The findings also resonate with adult motivation theory, which emphasizes the role of meaningful goals in sustaining adult learning participation [20], [21]. However, the study does not prove that spiritual content caused learning continuity; it only suggests that participants experienced spiritual reflection and motivation positively during the intervention.

The magnitude of the quantitative change was educationally meaningful: the mean score increased by 18.36 points, the bootstrap confidence interval excluded zero, and the Wilcoxon effect size was large (r = .84). Nevertheless, the absence of a comparison group means that maturation, testing effects, and contextual influences cannot be ruled out. The findings are therefore interpreted as preliminary feasibility and program-evaluation evidence rather than proof of efficacy. Simplified interfaces and slower pacing may theoretically reduce extraneous cognitive load, but cognitive load was not measured directly in this study.

This study contributes to community education by proposing a model that moves beyond basic digital-skills training. The AGI model combines learner autonomy, age-sensitive access, facilitator support, and spiritually meaningful content. Such integration may be useful for online lifelong learning programs serving older learners in religious or community-based settings [22]. Nevertheless, future studies should directly measure cognitive load, technological anxiety, motivation, and learning continuity using validated scales so that the theoretical relationships among the constructs can be tested more rigorously.

5. CONCLUSION

The findings provide preliminary evidence that the proposed Andragogy–Geragogy Integrative online learning model is feasible for middle-aged and older learners. Participants demonstrated improved post-intervention scores and generally positive spiritual-reflection outcomes, although the findings should be interpreted cautiously because of the small sample, absence of a comparison group, and reliance on self-reported and rubric-based measures. The model may offer a useful framework for combining age-sensitive digital instruction, learner autonomy, accessible interfaces, and personally meaningful spiritual content. Future research should evaluate the model using larger and more diverse samples, validated outcome measures, controlled research designs, and long-term follow-up.

CONFLICT OF INTEREST

The author declares that there is no conflict of interest regarding the publication of this article.

REFERENCES

[1] B. Findsen and M. Formosa, *Lifelong Learning in Later Life: A Handbook on Older Adult Learning*. Rotterdam, The Netherlands: Sense Publishers, 2011.

[2] P. Jarvis, *Learning in Later Life: An Introduction for Educators and Carers*. London, U.K.: Kogan Page, 2001.

[3] M. Huda and I. Suwahyu, “Peran artificial intelligence (AI) dalam pembelajaran Pendidikan Agama Islam,” *Referensi Islamika: Jurnal Studi Islam*, vol. 2, no. 2, pp. 53–61, 2024. [Online]. Available: https://ejournal.abcollab.id/index.php/RI/article/view/55

[4] N. Charness and W. R. Boot, “Aging and information technology use: Potential and barriers,” *Current Directions in Psychological Science*, vol. 18, no. 5, pp. 253–258, 2009.

[5] A. Macfarlane, “Online pedagogy for older adults: Considerations for digital interface design,” *Journal of Adult and Continuing Education*, vol. 26, no. 1, pp. 89–104, 2020.

[6] M. Mather, "Aging and cognition," *Wiley Interdisciplinary Reviews: Cognitive Science*, vol. 1, no. 3, pp. 346–351, 2010, doi: 10.1002/wcs.64.
[7] O. R. Riyanto, I. Muhammad, N. H. M. Sari, and N. H. Azmy, "Self-efficacy in online learning: A bibliometric analysis," *Journal of General Education and Humanities*, vol. 4, no. 1, pp. 141–152, 2025, doi: 10.58421/gehu.v4i1.361.
[8] M. S. Knowles, *The Adult Learner: A Neglected Species*, 3rd ed. Houston, TX, USA: Gulf Publishing, 1984.
[9] S. B. Merriam and L. L. Bierema, *Adult Learning: Linking Theory and Practice*. San Francisco, CA, USA: John Wiley & Sons, 2013.
[10] R. Hiemstra, "Three underdeveloped models for adult learning," *New Directions for Adult and Continuing Education*, vol. 1993, no. 57, pp. 37–46, 1993.
[11] G. M. Boulton-Lewis, "Education and learning for the elderly: Why, how, what," *Educational Gerontology*, vol. 36, no. 3, pp. 213–228, 2010.
[12] A. Zohar and Y. Z. Shavit, "Bridging geragogy and pedagogy: Towards a learning-sciences-based approach to older adults' education," *Educational Gerontology*, 2025, doi: 10.1080/03601277.2025.2569386.
[13] K. Illeris, *The Three Dimensions of Learning: Contemporary Learning Theory in the Tension Field Between the Cognitive, the Emotional and the Social*. Malabar, FL, USA: Krieger Publishing Company, 2004.
[14] J. Sweller, "Cognitive load theory and educational technology," *Educational Technology Research and Development*, vol. 68, no. 1, pp. 1–16, 2020, doi: 10.1007/s11423-019-09701-3.
[15] L. Tornstam, *Gerotranscendence: A Developmental Theory of Positive Aging*. New York, NY, USA: Springer Publishing Company, 2005.
[16] J. W. Creswell and V. L. Plano Clark, *Designing and Conducting Mixed Methods Research*, 3rd ed. Thousand Oaks, CA, USA: SAGE Publications, 2017.
[17] L. R. Aiken, "Three coefficients for analyzing the reliability and validity of ratings," *Educational and Psychological Measurement*, vol. 45, no. 1, pp. 131–142, 1985.
[18] L. J. Cronbach, "Coefficient alpha and the internal structure of tests," *Psychometrika*, vol. 16, no. 3, pp. 297–334, 1951.
[19] A. Field, *Discovering Statistics Using IBM SPSS Statistics*, 4th ed. London, U.K.: SAGE Publications, 2013.
[20] R. J. Wlodkowski, *Enhancing Adult Motivation to Learn: A Comprehensive Guide for Teaching All Adults*, 3rd ed. San Francisco, CA, USA: Jossey-Bass, 2008.
[21] S. Kim and S. B. Merriam, "Motivations for learning among older adults in a learning in retirement institute," *Educational Gerontology*, vol. 30, no. 6, pp. 441–455, 2004.
[22] A. R. Siregar, Mailin, and Lahmuddin, "Interpersonal communication-based religious services: Assisting elderly Hajj pilgrims in Medan," *Journal of General Education and Humanities*, vol. 5, no. 1, pp. 1873–1884, 2026, doi: 10.58421/gehu.v5i1.1158.