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Learning Style Tendencies of Early Adult Community Education Students Across Cohorts

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ABSTRACT

This study examines learning style tendencies among early adult Community Education students and compares their distribution across three cohorts. It responds to limited evidence on Kolb-informed experiential learning tendencies in community education, especially when such data are used for program-level pedagogical reflection rather than psychological labeling. A quantitative cross-sectional descriptive-comparative survey was conducted with total sampling of complete and valid responses from active students in the 2022, 2023, and 2024 cohorts (N = 210). An 18-item practical inventory, conceptually mapped to Kolb's experiential learning dimensions, classified tendencies into diverging, assimilating, accommodating, and converging. Data were analyzed using frequency distribution, cross-tabulation, chi-square test, and Cramer's V. Results showed that diverging was the most common tendency (34.8%), followed by assimilating (33.8%), accommodating (19.5%), and converging (11.9%). Cross-cohort differences were not statistically significant ($\chi^2(6, N = 210) = 4.60$, $p = .596$, $V = .10$). The findings indicate a stable reflective profile and support multimodal experiential pedagogy for classroom learning and community lab-site practice.

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1. INTRODUCTION

Learning in early adulthood in higher education is not merely the acquisition of information. It is a process in which students encounter experience, interpret it, connect it with concepts, and use it to guide later action. This position is consistent with adult learning theory, which views adults and emerging adults as learners whose prior experience, readiness to learn, and orientation to real problems shape how learning occurs (Knowles et al., 2025). In Community Education, these assumptions are especially important because students are prepared to become facilitators, trainers, organizers, and

educators in nonformal and community-based settings. Their academic learning therefore needs to be connected with authentic social problems, reflective meaning making, and practical intervention rather than with classroom transmission alone.

Kolb's experiential learning theory provides a useful conceptual language for understanding this movement between experience and knowledge. The model explains learning through four interrelated modes: concrete experience, reflective observation, abstract conceptualization, and active experimentation (Kolb, 2018; Kolb, 2015). From the interaction of these modes, four tendencies are often identified: diverging, assimilating, converging, and accommodating. More recent literature has emphasized that the value of experiential learning lies less in assigning students to fixed types and more in designing a complete cycle that enables learners to experience, reflect, conceptualize, and apply knowledge (Dillard et al., 2024; Morris, 2020; Henríquez et al., 2025). This orientation is relevant for higher education because students need opportunities to construct meaning from experience and not only to receive abstract explanation.

At the same time, the learning styles concept requires a critical stance. Several reviews have shown that teaching students strictly according to fixed learning styles is not supported by strong empirical evidence (Coffield et al., 2004; Pashler et al., 2008). Later critiques also warn that the learning-styles idea can become a persistent educational myth when it is used to categorize students rigidly or to justify one-method-for-one-style teaching (Kirschner, 2017; Newton & Miah, 2017). This study therefore does not treat learning style categories as psychological diagnoses. Instead, the categories are used as descriptive tendencies that can support reflective program evaluation, curricular conversation, and pedagogical diversification.

Such a non-deterministic use is important for Community Education. Students in this field engage with community empowerment, family and youth education, life skills training, literacy development, social facilitation, and participatory learning activities. These learning contexts demand the capacity to observe community realities, listen to learners' experiences, analyze problems conceptually, and design relevant action. Studies in adult and community education have similarly shown that authentic experience, social interaction, and participatory practice are central to meaningful learning (Brookfield, 2017; Illeris, 2003; UNESCO Institute for Lifelong Learning, 2022). Recent work by Hilmi and colleagues also highlights how community learning can emerge through andragogy-based life skills training, indigenous knowledge, socio-cultural practice, and stakeholder collaboration ((Gallo et al., 2025; Hilmi et al., 2026; Hilmi et al., 2025; Khotimah et al., 2025)

Current higher education studies further suggest that effective learning design should be multimodal and evidence informed. Active learning improves performance and reduces failure rates, but effective active learning must still include explicit structure, meaningful feedback, and opportunities for reflective consolidation (Deslauriers et al., 2019; Theobald et al., 2020). Generative strategies such as concept mapping, self-explanation, teaching others, and retrieval practice can strengthen conceptual understanding when they are aligned with the stage of learning (Fiorella & Mayer, 2016; Hattie & Donoghue, 2016). In technology-mediated and blended environments, interaction, flexibility, and support for learner regulation also matter (Boelens et al., 2017; Bond et al., 2020; Fawns, 2022; Kuluşaklı, 2026; Neroni et al., 2019; Raes et al., 2020; Rapanta et al., 2020).

The relevance of this issue has increased because many early adult students belong to Generation Z, a cohort often associated with preference for active, interactive, collaborative, and media-rich learning. However, such preference should not be interpreted as a rejection of reflection or conceptual depth. Empirical work on Generation Z learning preferences shows the importance of active and technology-supported learning, but this preference must be connected with structured academic reasoning and purposeful assessment (Eberhardt, 2017; Sánchez-Altamirano & Rodríguez-Rodríguez, 2025). For Community Education students, the issue is not whether learning should be active or

reflective, but how experience, dialogue, conceptualization, and contextual practice can be sequenced in one coherent pedagogical design.

Despite this relevance, empirical studies that map Kolb-informed learning tendencies among Indonesian Community Education students remain limited. The gap is more specific at the cross-cohort level. Existing learning preference data are often read as class-level information and rarely transformed into evidence for study-program curriculum design. Cross-cohort analysis can help lecturers identify whether tendencies are stable across academic generations or whether particular cohorts show distinctive patterns that require pedagogical adjustment. This study addresses that gap by analyzing the learning style tendencies of early adult Community Education students from three cohorts and by interpreting the results as a basis for multimodal, reflective, and context-sensitive course design.

Based on this background, the study aimed to: (1) map the distribution of learning style tendencies among Community Education students across three cohorts; (2) compare the distributional patterns across cohorts; and (3) formulate pedagogical implications for course development. The contribution of the article is twofold. Theoretically, it positions learning style data as flexible pedagogical tendencies rather than fixed learner labels. Practically, it offers evidence for designing Community Education courses that balance authentic experience, structured reflection, conceptual reinforcement, and contextual action.

2. METHODS

This study used a quantitative approach with a cross-sectional descriptive-comparative survey design. The design was selected because the purpose was not to test causal effects, but to describe the distribution of learning style tendencies and compare categorical patterns across cohort groups. A descriptive-comparative design is appropriate when the main data consist of group frequencies and when the researcher seeks to interpret proportional differences without manipulating variables (Creswell & Creswell, 2018).

The population consisted of active students in the Community Education Study Program from the 2022, 2023, and 2024 cohorts. Total sampling was applied to all submitted responses that met the analytical criteria. Inclusion criteria were: respondents belonged to one of the three target cohorts, completed the questionnaire fully, and were not identified as duplicate entries. Data cleaning included removing blank responses, checking completeness, standardizing cohort labels, and consolidating repeated class files. After cleaning, 210 valid responses remained: 78 students from the 2022 cohort, 68 from the 2023 cohort, and 64 from the 2024 cohort.

The instrument was an 18-item practical inventory developed with reference to Kolb's experiential learning framework. It was not the official Kolb Learning Style Inventory; therefore, the results are reported as learning tendency mappings rather than as psychometric diagnoses. The first nine items represented the active experimentation-reflective observation axis, while the next nine items represented the abstract conceptualization-concrete experience axis. The AE+AC combination was categorized as converging, AE+CE as accommodating, RO+AC as assimilating, and RO+CE as diverging (Kolb & Kolb, 2005; Manolis et al., 2013).

Instrument quality was addressed conceptually and procedurally. Conceptual validity was pursued by aligning each item with Kolb's four learning modes and by using transparent classification rules. Procedural reliability was strengthened by applying identical scoring steps to all respondents and by excluding incomplete or duplicate entries. However, internal consistency coefficients such as Cronbach's alpha were not reported because the inventory was used as a practical categorical mapping tool rather than as a unidimensional Likert scale. Alpha is informative for internally consistent scales, but it is not always suitable for multidimensional or forced-classification instruments (Boateng et al.,

2018; Tavakol & Dennick, 2011). This limitation is acknowledged and becomes a recommendation for future studies using the official KLSI or a fully validated local instrument.

Data analysis was conducted in four stages. First, responses were cleaned and standardized. Second, choices were recoded into the four experiential learning modes. Third, each respondent was assigned to one dominant tendency based on the operational combination of the two axes. Fourth, frequencies and percentages were calculated for the overall distribution and for each cohort. A chi-square test of independence was used to examine whether learning style distribution differed significantly across cohorts, and Cramer's V was calculated to interpret effect size. The assumptions of independent observations and adequate expected frequencies were checked. Because duplicate entries had been removed and each respondent belonged to only one cohort, the independence assumption was considered fulfilled. Expected frequencies ranged from 7.62 to 27.11, meaning that no cell fell below five; therefore, the chi-square approximation was acceptable (Kim, 2017; McHugh, 2013). Effect size interpretation followed the principle that statistical significance should be complemented by practical interpretation of association strength.

Epistemologically, this study positions learning style information as a reflective aid for instructional diversification, not as a basis for labeling students. This stance responds to the broader critique of deterministic learning-style practices while still recognizing that descriptive data can help lecturers review whether course design provides sufficient opportunities for experience, reflection, conceptualization, and practice.

3. FINDINGS AND DISCUSSION

3.1 Respondent Profile and Visual Proportionality

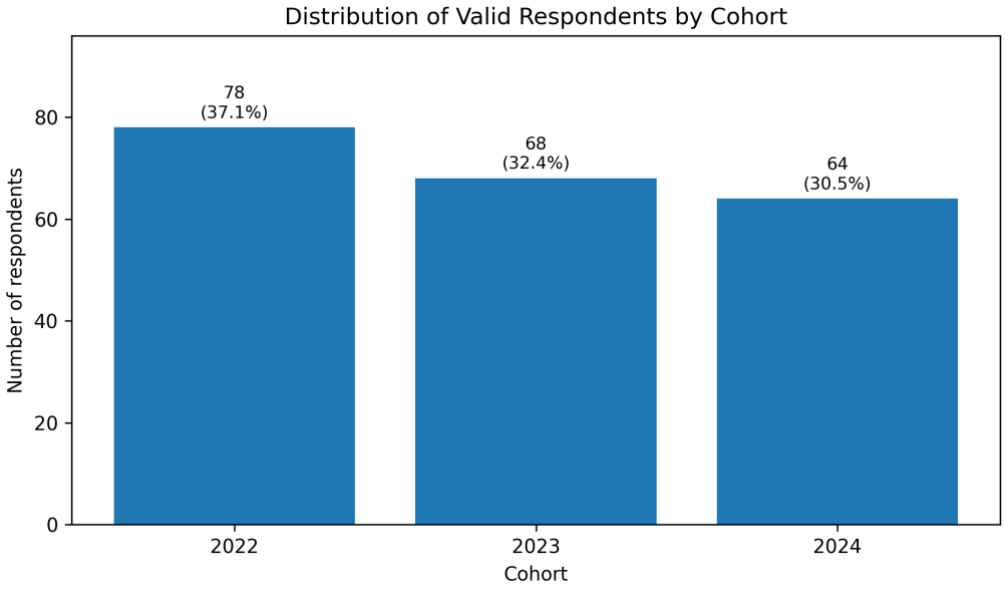

Figure 1. Distribution of valid respondents by cohort.

Figure 1 presents the distribution of valid respondents across the three cohorts. A total of 210 students were analyzed, consisting of 78 students from the 2022 cohort, 68 from the 2023 cohort, and 64 from the 2024 cohort. The relatively proportional distribution is methodologically useful because descriptive-comparative research requires clearly defined comparison groups and transparent sample profiles before group patterns are interpreted (Creswell & Creswell, 2018). Although the groups are not identical in size, no cohort overwhelmingly dominates the dataset. This condition supports a more

balanced cohort-level reading and makes the findings more relevant for study-program reflection than for isolated class-level description

3.2 Overall Distribution of Learning Style Tendencies

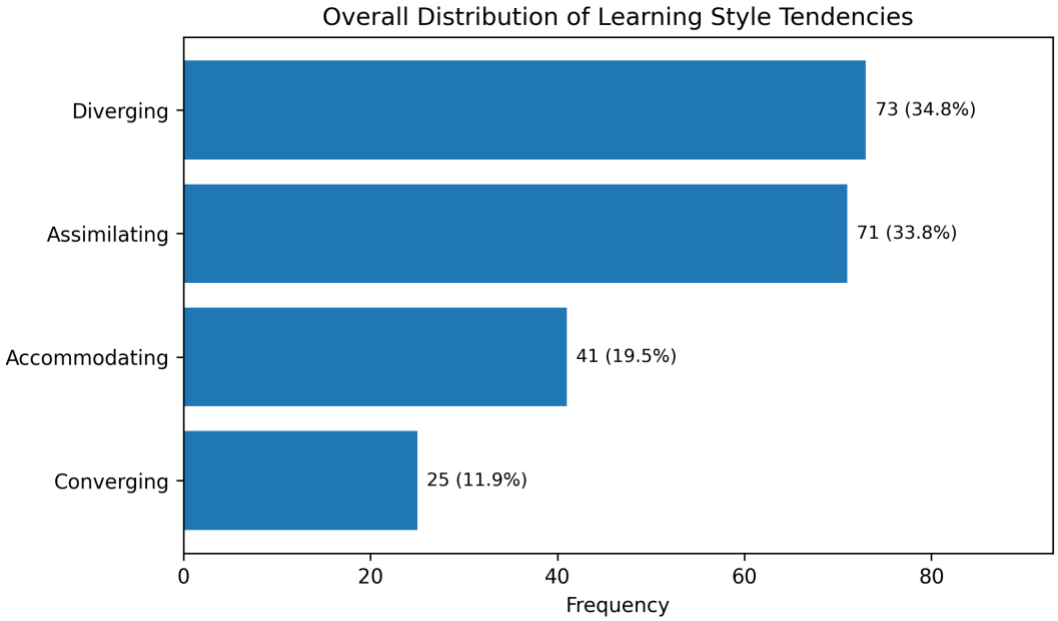

Figure 2. Overall distribution of learning style tendencies.

Figure 2 shows that diverging was the most frequent tendency (34.8%), followed very closely by assimilating (33.8%). Accommodating appeared in a moderate proportion (19.5%), while converging was the least frequent tendency (11.9%). Analytically, the dominance of diverging and assimilating indicates that reflective observation is a central learning mode among the respondents. In Kolb's model, diverging combines concrete experience with reflective observation, whereas assimilating combines reflective observation with abstract conceptualization (Kolb & Kolb, 2005; Kolb, 2015). This means that the dominant pattern is not simply a preference for one classroom technique, but a broader orientation toward observing, interpreting, and organizing experience before taking action. This reading is consistent with recent reviews that emphasize the experiential learning cycle as a dynamic process rather than a fixed categorization of learners (Morris, 2020; Henríquez et al., 2025).

The finding is pedagogically important because it suggests that effective learning for these students should not rely solely on activity-rich instruction. Studies on active learning show that student engagement can improve learning outcomes, but activity becomes educationally meaningful only when it is supported by structure, explanation, reflection, and feedback (Deslauriers et al., 2019; Theobald et al., 2020). Generative learning research also indicates that students deepen understanding when they are required to explain ideas, connect concepts, organize information, and retrieve meaning from prior experience (Fiorella & Mayer, 2016; Hattie & Donoghue, 2016). Therefore, the high proportion of diverging and assimilating tendencies implies that Community Education courses should combine experiential tasks with guided reflection, conceptual clarification, and opportunities for analytical synthesis

3.3 Interpretive Synthesis of Learning Orientation

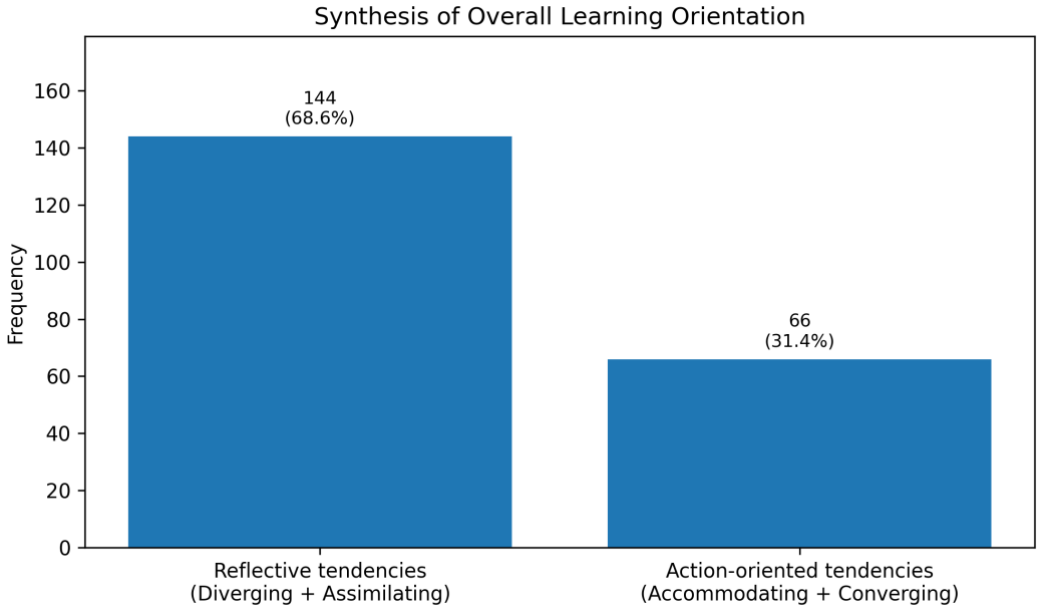

Figure 3. Synthesis of reflective and action-oriented learning tendencies.

Figure 3 synthesizes the four categories into two broader orientations. Diverging and assimilating together represent 144 students (68.6%), whereas accommodating and converging together represent 66 students (31.4%). This synthesis clarifies that the dominant profile of the respondents is reflective rather than immediately action-oriented. The result should not be interpreted as evidence that students are passive learners. Rather, it indicates that many students may require reflective mediation before moving from experience to intervention. This profile is consistent with adult learning perspectives that position experience, reflection, and meaning making as central elements of learning (Brookfield, 2017; Illeris, 2003; Knowles et al., 2025). It is also relevant to Community Education, where future facilitators must be able to listen to community experiences, identify multiple perspectives, and transform field encounters into grounded educational decisions (UNESCO Institute for Lifelong Learning, 2022).

3.4 Cross-Cohort Pattern of Learning Style Tendencies

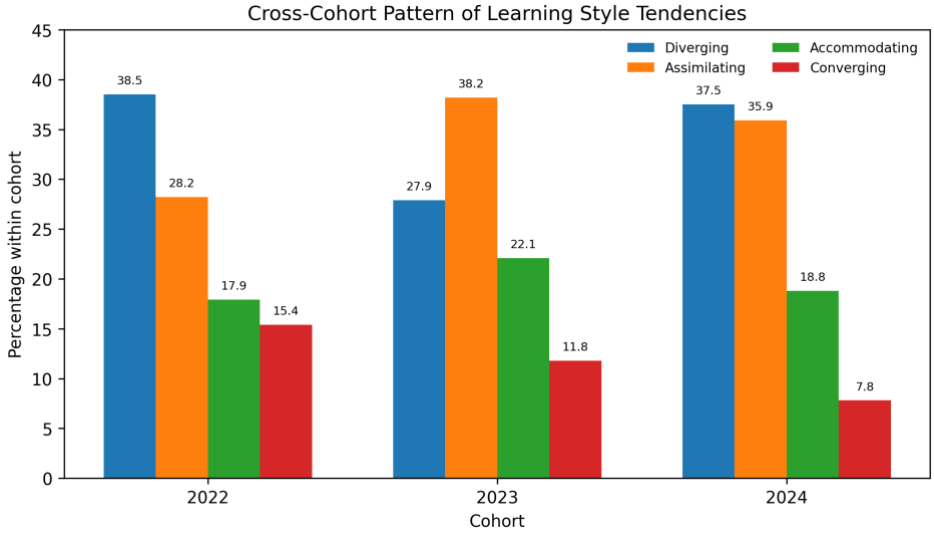

Figure 4. Cross-cohort pattern of learning style tendencies.

Figure 4 illustrates the cross-cohort comparison. The 2022 cohort was dominated by diverging (38.5%), the 2023 cohort by assimilating (38.2%), and the 2024 cohort again by diverging (37.5%) with assimilating close behind. Although the dominant category differs slightly across cohorts, the broader pattern remains stable because diverging and assimilating consistently appear as the two largest categories. This pattern suggests that variation across cohorts is better understood as a shift within reflective tendencies rather than as a fundamental difference between reflective and action-oriented profiles. In other words, the three cohorts share a similar learning orientation even though the balance between concrete-experience reflection and conceptual reflection varies proportionally.

The pattern may be read as an effect of a shared academic and disciplinary ecology. Community Education students are repeatedly exposed to discussion, case analysis, community observation, group facilitation, and reflective assignments. Such recurring academic experiences may contribute to the formation of similar learning tendencies across cohorts. This interpretation is consistent with experiential and adult learning literature, which argues that learning orientation is shaped not only by individual preference but also by the learning environment, task structure, cultural context, and opportunities for participation (Dillard et al., 2024; Illeris, 2003; Kolb & Kolb, 2005). In the context of Community Education, previous studies also show that adult and community learning often develops through authentic experience, stakeholder interaction, indigenous knowledge, and participatory practice (Gallo et al., 2025; Hilmi et al., 2026; Hilmi et al., 2025; Khotimah et al., 2025) Therefore, the cross-cohort stability found in this study can be interpreted as a program-level signal that the disciplinary culture consistently encourages reflective engagement.

3.5 Comparative Test and Meaning of Non-Significance

Table 1. Chi-square test and effect size results.

Test	χ^2	df	p	Cramer's V
Learning style distribution across cohorts	4.60	6	.596	.10

Table 1 shows that the distribution of learning style tendencies did not differ significantly across cohorts, $\chi^2(6, N = 210) = 4.60$, $p = .596$. Cramer's V was .10, indicating a very small association between cohort and learning style tendency. In chi-square analysis, non-significance means that the observed distributional differences are not strong enough to conclude that cohort membership is statistically associated with learning style categories (Kim, 2017; McHugh, 2013). However, the absence of statistical significance does not make the finding unimportant. In this study, the result is substantively meaningful because it strengthens the interpretation that reflective tendencies are relatively stable across cohorts. The very small effect size further indicates that cohort differences should not be overemphasized in instructional decision making.

This interpretation is important for avoiding deterministic use of learning style information. The data should not be used to label students or to assign one method to one group. Instead, the results should be treated as evidence for designing varied learning environments that allow students to move through experience, reflection, conceptualization, and application. This position is aligned with critiques of rigid learning-style matching, which argue that empirical support for assigning instruction according to fixed learning styles remains weak (Coffield et al., 2004; Pashler et al., 2008). Later critiques similarly warn that learning styles become problematic when they are used as fixed identities rather than as flexible pedagogical information (Kirschner, 2017; Newton & Miah, 2017). Thus, the

pedagogical value of the present findings lies in diversification and sequencing of learning experiences, not in categorization.

3.6 Pedagogical Implications for Classroom and Community Lab-Site Learning

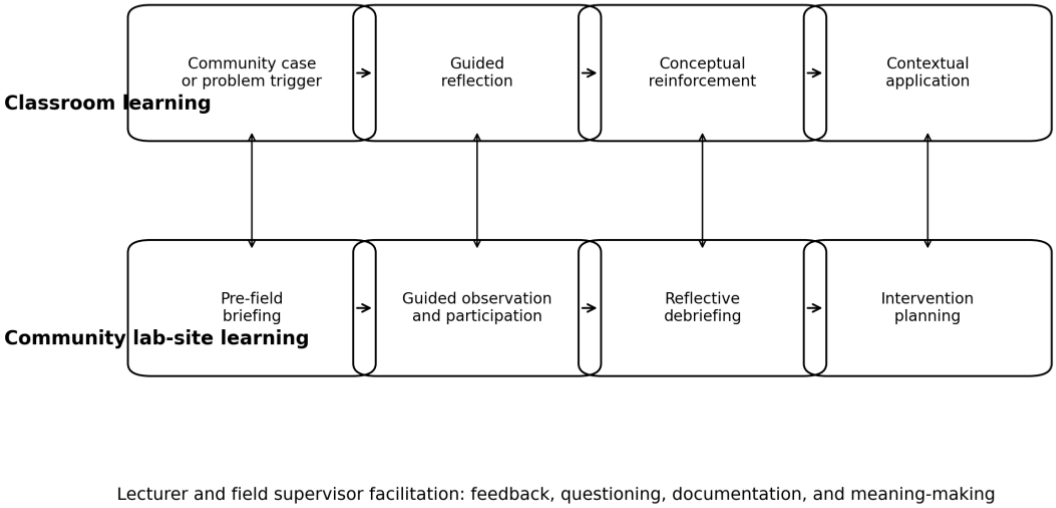

Figure 5. Pedagogical implication model for classroom and community lab-site learning.

The findings support an integrated pedagogical model for classroom learning and community lab-site practice, as summarized in **Figure 5**. In classroom settings, the dominance of reflective tendencies suggests that instruction should begin with authentic triggers such as community cases, social issues, field narratives, or documentary materials. These triggers should then be followed by guided discussion, reflective journaling, concept mapping, theoretical synthesis, and problem-based application. This sequence reflects the logic of experiential learning, in which experience becomes meaningful when it is followed by reflection, abstraction, and experimentation (Kolb & Kolb, 2005; Kolb, 2018; Morris, 2020). It is also supported by recent work in adult and higher education, which emphasizes that experiential learning should integrate technology, cultural responsiveness, interdisciplinary contexts, and structured learning cycles (Dillard et al., 2024; Henríquez et al., 2025).

Assessment should also be diversified. Written tests may still be used to measure conceptual mastery, but they should be complemented by reflective journals, observation reports, portfolios, case analyses, analytical presentations, and community project designs. Authentic assessment literature emphasizes that assessment should represent meaningful professional tasks and provide evidence of students' ability to apply knowledge in realistic contexts (Henríquez et al., 2025; Vlachopoulos & Makri, 2024). In addition, feedback should be designed as a learning process that helps students interpret their performance and plan improvement, not merely as a final judgment (Winstone & Carless, 2019). For Community Education students, this means that assessment needs to capture reflective reasoning, contextual interpretation, and intervention planning because these capacities are central to community facilitation practice.

In community lab-site learning, the findings suggest that field experience should not be treated as direct participation alone. Students need pre-field conceptual briefing, guided community observation, reflective dialogue after field engagement, and follow-up intervention planning. This structure is important because adult and community learning is not only about exposure to real settings, but also

about transforming experience into critical insight and socially responsive action (Brookfield, 2017; Knowles et al., 2025; UNESCO Institute for Lifelong Learning, 2022). The lab site should therefore function as a transformative learning environment where students connect lived experience, theoretical analysis, and professional responsibility. This implication is consistent with studies showing that contextual, participatory, and culturally embedded learning strengthens the relevance of community education practice (Gallo et al., 2025; Hilmi et al., 2026; Hilmi et al., 2025; Khotimah et al., 2025)

3.7 Theoretical Contribution and Limitations

Theoretically, this study contributes to a cautious and pedagogically useful reading of learning style data. It does not support the matching hypothesis that students must be taught only according to their dominant style. Rather, it supports the use of learning style information as a program-level diagnostic tool for designing richer learning ecologies. This contribution is important because learning style research has often been criticized for encouraging deterministic labeling and weak instructional assumptions (Coffield et al., 2004; Kirschner, 2017; Newton & Miah, 2017; Pashler et al., 2008). By interpreting the data through experiential and adult learning perspectives, the present study reframes learning style tendencies as signals for sequencing experience, reflection, abstraction, and action in Community Education curricula (Dillard et al., 2024; A. Y. Kolb & Kolb, 2005; Morris, 2020).

Several limitations should be acknowledged. First, the instrument was a practical inventory based on Kolb's framework, not the official Kolb Learning Style Inventory. Second, the study was cross-sectional, so it cannot explain whether students' tendencies change over time. Third, the analysis did not include other variables such as academic achievement, field-practice performance, organizational experience, gender, or prior community engagement. Fourth, although conceptual and procedural validation steps were described, further psychometric work is still needed. Future studies should conduct more rigorous item analysis, reliability testing, and validity assessment because instrument development requires systematic evidence of content relevance, internal structure, and score interpretation (Boateng et al., 2018; Tavakol & Dennick, 2011). Future research may also combine survey analysis with interviews, reflective journals, or classroom observation to explain how students actually move through experiential learning processes in classroom and community lab-site contexts.

4. CONCLUSION

This study found that early adult Community Education students are dominated by two reflective learning tendencies: diverging and assimilating. Although the 2022 and 2024 cohorts showed stronger diverging tendencies and the 2023 cohort showed stronger assimilating tendencies, the chi-square test indicated no statistically significant cross-cohort difference and only a very small effect size. The results therefore point to a relatively stable reflective profile across cohorts.

The study contributes to experiential learning and Community Education scholarship by showing that learning style information can be used critically as a program-level pedagogical reflection tool, not as a fixed student label. For instructional development, the findings support multimodal experiential learning that integrates authentic experience, structured reflection, conceptual reinforcement, and contextual application. This design is relevant not only for classroom learning but also for community lab-site practice, where students need to observe social realities, interpret community dynamics, and design educational interventions responsibly.

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Conflicts of Interest: The authors declare no conflict of interest.

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