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Institutional Training On Learning Analytics and Teacher Adaptation to Personalized Artificial Intelligence Learning in A Normal University in China

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ABSTRACT

In the context of rapid digital transformation in Chinese higher education, the integration of Personalized Artificial Intelligence Learning (PAIL) and Learning Analytics (LA) is reshaping instructional roles. Grounded in the Sociotechnical Systems Theory for AI in Education (STSF-AI), this study investigates the relationship between institutional training on learning analytics and teacher adaptation to personalized AI learning among faculty members at Minnan Normal University, China. Employed is a **descriptive-comparative-correlational research design** using a researcher-made questionnaire with stratified random sampling. The study measures two core constructs: (1) self-assessment of institutional LA training across five dimensions—data interpretation competency, platform feature mastery, ethical data usage, instructional intervention design, and actionable insight formulation; and (2) teacher adaptation to AI across five indicators—AI tool integration proficiency, personalized pathway differentiation, AI-driven insight application, adaptive feedback cycle management, and balance of automated vs. human instruction. Descriptive statistics (frequency, percentage, weighted mean), One-Way ANOVA with Scheffe post-hoc, and Pearson Product-Moment Correlation (r) were used to analyze demographic differences and variable relationships at $p < 0.05$. Findings are expected to reveal how data literacy training scaffolds pedagogical agency in AI-enabled classrooms. As an output, the study culminates in a proposed **AI-Enhanced Professional Learning Community Program** to help administrators balance algorithmic efficiency with human-centered teaching. The results contribute localized empirical data to the discourse on AI integration and teacher professional development in East Asian normal universities.

Keywords: Learning Analytics; Institutional Training; Personalized AI Learning; Teacher Adaptation; Sociotechnical Systems Theory; Higher Education; Minnan Normal University; Professional Learning Community; China

1. INTRODUCTION

From an educational management perspective, institutional training on learning analytics represents a deliberate, top-down strategy to build human capital capable of navigating modern data-driven environments. Learning analytics involves the measurement, collection, analysis, and reporting of data about learners to optimize outcomes. When university leadership mandates systematic LA training, it builds a shared data literacy across the academic workforce (Mao, 2025). However, the rise of personalized AI learning platforms complicates the traditional instructional role. In AI-enabled classrooms, adaptive algorithms autonomously adjust content delivery and assessment pacing based on real-time indicators (Lee et al., 2025). Without clear institutional guidance, teachers often view AI-driven personalization as a disruptive force challenging their pedagogical authority (Lachheb et al., 2025).

To address this friction, institutional training must explicitly connect data tracking with active instructional adaptation. Teacher adaptation means an educator's willingness to restructure methods and design targeted interventions based on AI insights. Structured professional development reduces adoption friction and helps instructors transition from primary information deliverers to strategic learning facilitators (Isman et al., 2026). Furthermore, training mitigates psychological barriers—such as data anxiety and cognitive resistance—by creating safe environments for experimentation (Waseem et al., 2024). It also protects against automation bias, teaching faculty to treat AI analytics as a supplementary diagnostic tool rather than absolute truth (Heung & Chiu, 2025).

Despite clear strategic benefits, a gap persists between technical training provision and actual psychological adaptation in live classrooms. Many programs focus on software mechanics while overlooking relational adjustments educators face when sharing space with AI (Ouyang et al.). In high-stakes, centralized educational cultures, data tools can create surveillance tensions. This study directly addresses this gap by examining how institutional training on LA conditions teacher adaptation to personalized AI in a Chinese normal university context.

2. STATEMENT OF THE PROBLEM

This study will identify the institutional training on learning analytics and teacher adaptation to personalized artificial intelligence learning in a normal university in China. The results will be used to propose an AI-enhanced professional learning community program.

Specifically, the study will answer the following questions:

1. What is the demographic profile of the teacher respondents in terms of:

1.1. sex;

1.2. age;

1.3. length of service;

1.4. educational attainment; and

1.5. number of attended seminars related to the topic?

2. What is the self-assessment of the teacher respondents of their institutional training on learning analytics in terms of:

2.1. data interpretation competency;

2.2. platform feature mastery;

2.3. ethical data usage and privacy compliance;

2.4. instructional intervention design; and

2.5. actionable insight formulation?

3. Is there a significant difference in the self-assessment of the teacher respondents of their institutional training on learning analytics when grouped according to their profile?

4. What is the self-assessment of the teacher respondents of their adaptation to personalized artificial intelligence learning in terms of:

4.1. AI tool integration proficiency;

4.2. personalized pathway differentiation;

4.3. AI-driven insight application;

4.4. adaptive feedback cycle management; and

4.5. balance of automated vs. human instruction?

5. Is there a significant difference in the self-assessment of the teacher respondents of their adaptation to personalized AI learning when grouped according to their profile?

6. Is there a significant relationship between the self-assessment of institutional training on learning analytics and their adaptation to personalized artificial intelligence learning?

7. Based on the results of the study, what AI-enhanced professional learning community program can be proposed?

Hypotheses Tested (at $p < 0.05$):

- Ho1: No significant difference in LA training self-assessment when grouped by profile.

- Ho2: No significant difference in AI adaptation self-assessment when grouped by profile.
- Ho3: No significant relationship between LA training and teacher adaptation to AI.

3. METHODOLOGY

Research Design

A descriptive-comparative-correlational framework was utilized (Creswell, 2018; Babbie, 2021; Field, 2018) to map generalized behaviors and analyze statistical connections within a defined population.

Research Locale

The study will be conducted at **Minnan Normal University**, Zhangzhou, Fujian Province, China—a key provincial "Double First-Class" construction university with a historical strength in teacher education.

Sampling Technique

Stratified random sampling will be employed. The sample size (n) will be computed relative to the total population (N) of educators at Minnan Normal University at a 95% confidence level to ensure proportional representation across demographic strata.

Research Instrument

A 4-point Likert-type researcher-made questionnaire (validated by 5 experts, pilot-tested with Cronbach's alpha via SPSS) divided into:

- **Part I:** Demographic Profile (sex, age, length of service, educational attainment, seminars attended).
- **Part II:** Institutional Training on LA (40 items, 5 dimensions; scale: 1-Inadequate to 4-Very Adequate).
- **Part III:** Adaptation to Personalized AI Learning (40 items, 5 dimensions; scale: 1-Incapable to 4-Very Capable).

Data Gathering Procedure

Official permission from the university president will be secured first. Informed consent will be obtained. Questionnaires will be administered in person during supervised blocks to maximize response rate and control. Completed forms will be cleaned and tabulated.

Statistical Treatment

- RQ 1: Frequency, percentage, descriptive statistics.

- RQ 2 & 4: Weighted Mean (Interpretation: 3.51–4.00 Very True of Me; 2.51–3.50 True of Me; 1.51–2.50 Somewhat True; 1.00–1.50 Not True).
- RQ 3 & 5: One-Way ANOVA with Scheffe post-hoc test.
- RQ 6: Pearson Product-Moment Correlation Coefficient (r).
- Significance Level: $p < 0.05$. Software: SPSS.

Ethical Considerations

Conflict of interest disclosure, strict privacy/anonymity, informed consent, voluntary participation (right to withdraw), and zero-risk assessment protocols will be observed.

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