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Article

The Impact of Learning Analytics Technology Acceptance on Teaching Decision-Making Among Secondary School Teachers in Chongqing, China

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Abstract: This study examines factors influencing Learning Analytics Technology (LAT) acceptance among secondary school teachers in Chongqing, China, and investigates its relationship with teaching decision-making. This research employed a quantitative cross-sectional design and collected data from 341 teachers (197 urban, 144 rural) using a structured questionnaire. Descriptive statistics revealed moderately high overall LAT acceptance (M=3.68, SD=0.79), with significant differences between urban (M=3.92, SD=0.65) and rural teachers (M=3.44, SD=0.78). Correlation analysis identified strong associations between LAT acceptance and teacher training ($r=0.624$, $p<0.001$), management support ($r=0.581$, $p<0.001$), and technology availability ($r=0.537$, $p<0.001$), with peer influence showing a moderate relationship ($r=0.429$, $p<0.001$). LAT usage demonstrated a significant positive correlation with teaching decision-making efficacy ($r=0.578$, $p<0.001$), particularly with decision quality ($r=0.594$, $p<0.001$). This relationship was stronger among urban teachers ($r=0.612$, $p<0.001$) than rural counterparts ($r=0.524$, $p<0.001$), highlighting an urban-rural divide in educational technology benefits. The findings provide empirical evidence for educational administrators and policymakers seeking to enhance LAT implementation in secondary schools, suggesting that comprehensive approaches addressing professional development, institutional support, and technological infrastructure are essential for effective LAT adoption, with particular attention needed to reduce urban-rural disparities.

Keywords: Learning analytics technology; technology acceptance; secondary school teachers; teaching decision-making; urban-rural divide.

Introduction

With increased promotion of educational informatization, Learning Analytics Technology (LAT) is recognized as a major learning and instructional process supporting tool for gathering, analysis, and interpreting learning information about students (Lee et al., 2020). LAT provides teachers with objective information for instructional strategies and decision-making based on learning behaviour and performance information about students (Guzmán-Valenzuela et al., 2021). "Education Informatization 2.0 Action Plan" in China in particular supports data-based educational innovation, providing policy foundation and practical necessity for application in decision-making in education for LAT.

Despite the possibility for quality improvement in learning in Chinese secondary schools, practical application is faced with various hindrances. Disparities in application of learning technology in urban and rural counties in China have been highlighted by Wang et al. (2021), while in general, rural counties lag in technology infrastructure and application stages relative to urban counties. Chinese teachers have good

learning technology attitude but there is a cognition-practice gap, as highlighted by Du et al. (2022), especially in subject-matter-based technology like learning analytics.

Chongqing is a key urban centre in western China and exhibits characteristics of a modern metropolis and extensive rural districts, and there are significant urban-rural discrepancies in educational advancement. Until now, there is relatively little empirical research about acceptance of LAT in middle schools in Chongqing, and little is known about mechanisms for how LAT influence teacher decision-making. The paucity of research hampers the ability for decision-makers and educational administrators to formulate effective strategies for implementing LAT in middle schools.

In this context, this research investigates key drivers in shaping acceptance of learning analytics technology among secondary school teachers in Chongqing and probes learning analytics technology's impact on instructional decision-making. The research asks two different questions: What are key drivers shaping acceptance of learning analytics technology among secondary school teachers in Chongqing? How does learning analytics technology affect instructional decision-making among secondary school teachers?

Utilizing quantitative methodology, this research polled 341 middle school urban and rural teachers in Chongqing and utilized SPSS software in analysing information. The findings in this research provide empirical evidence for instructional leaders and decision-makers in guiding them in creating effective strategies for inspiring utilization of LAT in middle schools, enhancing decision quality in instructional practices, and thereby enhancing learning outcomes. Based on the identified research gaps, this study has two primary objectives:

i. To examine the key factors influencing Learning Analytics Technology acceptance among secondary school teachers in Chongqing, China, with particular attention to urban-rural differences
ii. To investigate the relationship between LAT acceptance and teaching decision-making effectiveness, exploring how this educational technology impacts instructional practices

These objectives guide the methodological approach and provide a framework for analysing and interpreting the findings to support policy recommendations for enhancing LAT implementation in Chinese secondary education.

Literature Review

1. Technology for Learning Analytics in Education

Learning Analytics Technology (LAT) is a breakthrough in instructional technology offering solutions for learning and instructional improvement based on data. Zilvinskis et al. (2017) defined learning analytics as "the measurement, collection, analysis, and reporting of data about learners and their contexts, for purposes of understanding and optimizing learning and the environments in which it occurs." The definition highlights the key goal of using data to improve learning outcomes based on systematic analysis and interpretation.

Conceptual bases for LAT have evolved greatly since it came to be established as a unique discipline. Originally, learning analytics had occupied a place at the intersection of instructional data mining and academic analytics (Kew & Tasir, 2022) and emphasized as providing actionable insights for learning stakeholders. Hernández-de-Menéndez et al. (2022) took this conceptual basis and theorized that good use of LAT should account for learning context and educational epistemologies and not just for technical capabilities. The vision is to enable learning analytics tools in rich learning ecosystems based on multiple theoretical assumptions about learning, learning assessment, and knowledge.

In actuality, there are varied functionalities and uses in varied learning settings. Ouyang & Zhang (2024) classified them in four general forms: student performance monitoring, at-risk student predictive analysis, learning personalization support, and decision-making support at the level of the institution. Gedrimiene et al. (2020) identified learning analytics features as visualizations, personal feedback mechanisms, early warning mechanisms, and predictive modelling. The varied uses are indicative of adaptability in tackling varied learning issues at varied application levels.

Use of LAT across schools globally has posted consistent rises, though there are different trends in use across different contexts. Leitner et al. (2017) in a systematic review confirmed there is leadership in

application of LAT in North American and European as well as Australian higher learning, while there is increased application in recent years in Asian countries. In the domain of secondary schools specifically, Peña-Ayala (2017) confirmed there is still emergent use and there is different use in methodology and sophistication level.

In China, there have been recent decades of rapid uptake in educational technology as part of wider nationwide agendas for modernizing schools. Song (2023) documented Chinese investments in educational technology infrastructure as part of wider reforms in Chinese schools. However, Luo et al. (2022) identified variations in learning analytics and wider uses of educational technology across Chinese learning environments, and there are urban-rural discrepancies in deployment. Guo & Li (2024) cited specifically that uses of LAT in China are largely in advanced urban sites and relatively slow in rural sites, and consequently are potentially exacerbating current learning inequalities.

2. Factors Influencing Educational Technology Acceptance

Understanding why and how teachers adopt or reject educational technology is a key research interest in instructional technology. The Technology Acceptance Model (TAM) presented by Davis (1989) is a key conceptual model for examining technology adoption variables. Perceived usefulness and perceived ease of use are key drivers for technology acceptance and shape user attitude and behaviour towards adopting technology as identified in TAM.

Based on this foundation, Granić (2023) derived the Unified Theory of Acceptance and Use of Technology (UTAUT) based on some additional constructs such as conditions for use, personal characteristics, and social influence. The extended theory incorporates personal, contextual, and technology variables in explaining technology acceptance behaviour. In schools in general, Teo (2011) established cognitive beliefs about technology among teachers in terms of perception of technology as compatible with instructional ideologies as playing a significant role in predicting behaviour in adopting technology.

A number of major determinants have come out in research as influential in shaping teacher acceptance for educational technology. Training and staff development have remained major drivers. Casey et al. (2023) explained how technology training improved technology acceptance among teachers in terms of expertise and confidence in using technology. Pedagogical training in dealing with technology integration in instructional practices emerged as highly influential in ensuring sustainable use of technology among teachers (Granić, 2019).

Institutional aspects are equally influential in acceptance in educational technology. The significance of managerial support was stressed in research by Frøsig (2023), who established that administrative approval, resource deployment, and organizational culture are key indicators for implementing technology in schools. Technological infrastructure and presence have been identified as key enablers for adopting technology in schools in research by Hong et al. (2021), who observed that insufficient technical resources are major obstacles to deployment irrespective of teacher attitude.

In Chinese schools in general, there have been some research studies looking at teacher acceptance of technology in Chinese schools. Three variables explaining Chinese teacher acceptance of instructional technology have been identified as teacher training, assistance at school, and presence of technology (Liu et al., 2019). Administrative assistance and school culture have been recognized as main variables in Chinese teacher acceptance and intention towards adopting innovative technology (Hong et al., 2021). Chinese teacher perception regarding technology congruence with current instructional practices explained Chinese teacher intention towards adopting in examination-based learning climates (Yang et al., 2021).

Chinese urban-rural divide is a highly salient force in educational technology adoption. Huang & Teo (2021) documented pervasive disparities in educational technology use in Chinese urban and rural schools and pinpointed discrepancies in investments in infrastructure, teacher training opportunities, and priorities in schools as reasons for disparities. Apart from geographic boundaries, cultural determinants also significantly influence technology acceptance patterns. Jiang et al. (2023) carried out an in-depth bibliometric analysis of cross-cultural adaptation studies on new media, concluding that social media use as well as psychological adaptations were significant determinants of technology adoption in various cultural contexts. Their research

implies that technology acceptance has to be interpreted within certain cultural contexts, supporting this study's methodology in its investigation of LAT acceptance in the particular educational culture of Chinese secondary school students.

Rural Chinese teachers had more hindrances to educational technology adoption in the form of limited technical tools, lack of training, and lower quality supportive learning conditions, as documented in a study by Sun & Mei (2022). The findings suggest urban-rural location can exert a strong moderating influence on acceptance variables in Chinese schools. The technology adoption difficulties in China's rural areas are not just seen in educational environments but are faced in homes as well. Wu & Mustafa (2023) conducted research on bottom-up technology transfer in rural Chinese households, concluding that demographic traits, subjective attitudes, psychological expectations, and social relationships had significant effects on technology adoption. Their work illustrated how people with fewer resources (older, less well-educated, female) had greater difficulty in technology adoption, in line with the experience of teachers in resource-scarcity rural schools. This implies that social as well as institutional forces should be accounted for in studies of technology acceptance in Chinese rural environments.

3. Instructional Decision-Making and Learning Analytics

Learning analytics and decision-making in education have drawn increased research scrutiny as data-based practices are becoming evermore prominent in instructional practices. Leitner et al. (2017) have conceptualized data-based decision making as a structured process in which teachers collect and review multiple sources of information in a systematic manner in order to direct instructional and managerial decision-making. Technologies in learning analytics have much to offer in supporting this process as they can convert raw instructional information into usable insights. Gasevic et al. (2019) assumed that learning analytics essentially reframes decision-making in learning at different organizational levels, providing empirical information to augment expert judgement. It does this at different organizational levels, ranging from instructional decision-making at the class level to whole-institution-level strategic planning. V Niet et al. (2016) specifically examined learning analytics and instructional decision-making at the teacher level and concluded that information derived from analytics influenced teachers' deployment of attention, intervention strategies, and testing strategies.

Several processes have been established in research in which learning analytics influence decision-making in teaching. Lytras et al. (2018) depicted how learning analytics tools empower decision-making in teaching in offering real-time and objective information regarding learning and learning trends. Kurilovas (2019) confirmed that visualization tools for presentation of analytics outcomes in simple formats highly enhanced teachers' learning trend identification and instructional strategies modification capability. Ifenthaler et al. (2021) observed that predictive analytics supported proactive decision-making in learning problem identification prior to when they had evolved into learning problems.

Learning analytics impact in informing instructional decision-making is susceptible to various variables. Zhang et al. (2024) emphasized that instructional staff members' literacy in managing data—the ability to transform available data into usable information—plays a key intervening factor in closing analytics usability and decision quality improvement. And cautioned that technology alone is not enough to ensure improved decision quality and stressed the necessity for cultures in organizations conducive to evidence-based practices and adequate support in interpreting data.

In instructional decision-making and learning analytics in Chinese context, research is still relatively limited. Liu et al. (2022) concluded Chinese teachers saw technology as potentially beneficial for instructional decision-making but had insufficient data literacy to adequately use this potential in actual instructional practices. Chinese middle-school-level instructional staff who applied data-based strategies had improved confidence in instructional decision-making, in particular in addressing differentiating instruction for different student needs. Hence, Chinese testing pressure at times limited instructional staff in implementing insights in analytics in opposition to established instructional practices.

Educators in urban and rural schools have also manifested urban-rural variations in learning analytics use in instructional decision-making in Chinese secondary schools. Urban Chinese teachers have been

observed to report increased use of technology-based insights in instructional decision-making compared to their rural-based counterparts (Meng et al., 2024), attributing increased use in urban schools to better technology infrastructure, stronger administrative support, and broader opportunities for teacher training in urban schools as reasons for this difference. The findings suggest contextual variables may have a significant moderating impact in learning analytics use and instructional decision-making in Chinese secondary schools.

4. Study Gap and Existing Study

Despite intensified research in learning analytics technology and decision-making in schools, there are still some research gaps in place, particularly in Chinese secondary schooling contexts. Second, though there is rich research in general acceptance in education technology, there is scant research examining learning analytics technology acceptance in secondary school teachers. LAT is another form of educational technology in need of different deployment conditions and instructional implications and can influence acceptance trends in different ways than other forms of technology.

Secondly, recent research still hasn't fully exploited Chinese urban-rural context in studying acceptance of educational technology. While there have been established urban-rural differentials in technology usage, there have not yet been systematic analyses looking at how place moderates individual acceptance variables. It is critical to be informed about these trends in formulating interventions targeted at addressing unique problems in schools in the rural context.

Finally, there is insufficient empirical research in studying use of LAT and decision-making in instructional practices in non-Western education systems. The majority of research in this context is drawn from Western schools in alternative organizational cultures, instructional cultures, and IT cultures compared to Chinese schools. The deficiency is limiting in offering insights on how systemic and cultural features can affect use of analytics in informing instructional decision-making.

Fourth, there is scant research correlating acceptance drivers and decision-making outcomes. Existing research has taken a siloed viewpoint in examining acceptance drivers or decision-making implications separately, as opposed to looking at relationships between them. That disconnect limits understanding about how acceptance trends can affect learning outcomes resulting from learning analytics deployment.

The research addresses these limitations in current research by studying not only Chinese secondary-school teacher acceptance correlates but also urban and rural teacher decision-making-teaching usage linkages. By analysing urban and rural teacher responses in parallel, the research illuminates how contextual difference moderates acceptance trends and decision-making linkages. The integrated methodology allows for improved Chinese secondary-level LAT use comprehension and provides empirical evidence for informing targeted strategies for supporting effective LAT uptake in different learning contexts.

5. Theoretical Framework

This research applies an integrated theoretical basis drawn from technology acceptance and data-based decision theory. The investigation of acceptance variables for LAT draws upon Technology Acceptance Model (Davis, 1989) and variations thereof, for instance, UTAUT (Venkatesh et al., 2003), and are known to accurately identify key determinants for technology adoption intention and behaviour. The theoretical basis for examining teacher training, managerial support, technology presence, and peer pressure as acceptance influence variables for teachers draws upon these models. Drawing on Mukred et al. (2024) theory based on data-based decision-making, in which they theorize about how teachers transform data to usable information in processes involving gathering, sorting, analysing, summarizing, and synthesizing, this research shape inquiry about how application of LAT is connected to dimensions of decision-making in teaching, be it decision processes or quality outcomes. Drawing on these theoretical frameworks, this research develops a rich theoretical framework for explaining precursors to acceptance of LAT and how acceptance is connected to learning outcomes in Chinese secondary schools. An integrated method provides for richer investigation of how acceptance variables can potentially influence LAT learning outcomes in the longer term through impact on usage and quality of implementation.

Figure 1 presents the theoretical model guiding this study, illustrating the relationships between variables based on established theories. Drawing on the Technology Acceptance Model (Davis, 1989), UTAUT (Venkatesh et al., 2003), and Data-Based Decision Theory (Mukred et al., 2024), the model shows how influencing factors predict LAT acceptance and how acceptance affects teaching decision-making, with urban-rural context as a potential moderator.

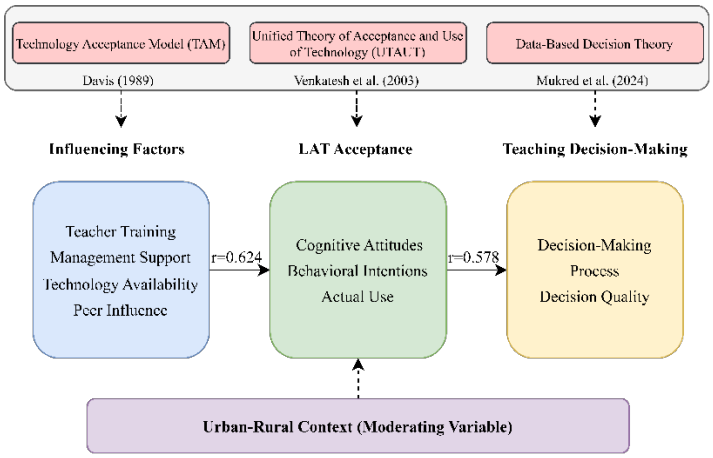

Figure 1. Theoretical Model of LAT Acceptance and Teaching Decision-Making

Methodology

1. Study Design

For this research, a quantitative research method and structured questionnaire surveys were applied in gathering information. Quantitative research is appropriate for measuring variables and making generalizable findings (Creswell & Creswell, 2017, pp. 241-291). The application of a cross-sectional survey research design allowed information gathering in a population at a specified time and thereby answering research questions.

2. Participants and Sampling for Research

Participants in the research comprised secondary school teachers in Chongqing, China. According to information in Chongqing Education Commission, there are 18 major secondary schools in the city and approximately 2,997 teachers. The required sample size was calculated based on Krejcie and Morgan (1970) formula for calculation of sample size as 341 participants at confidence level of 95% and at a margin of error of 5%.

Proportional stratified sampling secured representativeness in the sample. The schools were classified as urban or rural and later had samples drawn in proportions based on each school's population of teachers. Table 1 presents the sampling distribution.

Table 1. Sample Distribution

School Type	Number of Schools	Total Teachers	Sample Size
Urban Secondary Schools	10	1,732	197
Rural Secondary Schools	8	1,265	144
Total	**18**	**2,997**	**341**

3. Research Instrument

The research instrument was tested for validation in a pilot test involving 30 teachers of secondary school who were not part of the final sample. The pilot test tested the reliability of the instrument as well as any flaws in the wording of the questions or structure of the questionnaire.

Pilot testing outcomes showed satisfactory reliability for all scales ranging between 0.78 and 0.89, as indicated by Cronbach's alpha coefficients. LAT Acceptance Scale had a Cronbach's alpha of 0.85, the scale for influencing factors had a reliability of 0.83, while the Teacher Decision-Making Scale had a value for the coefficient of 0.81. These were above the minimum recommended value of 0.70, thus establishing internal consistency of the measure. The research utilized a self-developed questionnaire divided into four sections:

i. Demographic information includes Gender, Age, Teaching experience, Educational Qualifications, and School type.
ii. LAT Acceptance Scale: A self-report measure of acceptance towards LAT based on 15 questions utilising a Likert type scale (1=strongly disagree, 5=strongly agree). The scale accessed three dimensions: cognitive attitude (5 questions), behaviour intention (5 questions), and actual use (5 questions).
iii. Influencing Factors Scale: A questionnaire measuring influencing factors for teacher acceptance of LAT based on 20 questions in four dimensions: teacher training (5 questions), management support (5 questions), technology availability (5 questions), and peer influence (5 questions).
iv. Teacher Decision-Making Scale: A tool for measuring self-efficacy for instructional decision-making in teachers in 10 items on two dimensions, decision-making process (5 items) and decision quality (5 items).

4. Data Collection

Upon approval by the Chongqing Education Commission, questionnaire distribution was planned and executed in cooperation with school administrators. The questionnaire was distributed in paper and online formats to achieve larger response volumes. The collection period took place for two months (March-April 2023) and yielded a total of 352 questionnaires, out of which 341 remained after excluding incomplete responses and had a 96.9% effective rate.

5. Data Analysis

Data analysis was performed using SPSS 27.0 software and involved three main analysis techniques:

i. Descriptive statistics have been used in this research to depict the sample and to explore the distribution of key variables. The central tendency (mean) and dispersion (standard deviation) measures for acceptance dimensions for LAT, influence variables, and decision-making in teacher scales have been computed. The statistics provided a general description regarding acceptance level for LAT and variations in acceptance among urban and rural teachers.
ii. Pearson correlation coefficient Correlation analysis compared relationships among research variables. Correlation analysis compared associations among acceptance of LAT and hypothesized variables (technology presence, managerial support, teacher training, and peer influence) and usage of LAT and dimensions in decision-making in teaching. Correlation values between 0.00 and 1.00 depicted relationships in terms of direction and magnitude, and values above 0.50 depicted strong relationships.
iii. Reliability Test confirmed internal consistency in measuring instruments based on Cronbach's coefficient alpha. Reliability analysis confirmed to what extent each measure in each measuring instrument is measuring the same thing. Cronbach's values of and above 0.70 are good enough, and values of and above 0.80 are good reliability. Reliability testing confirmed trustworthiness in research instruments before conducting other statistical analyses.

This research determined significance for all statistical analyses at 0.05, providing a confidence level in observed associations at 95%. The application of this method for analysis facilitated systematic exploration of research questions without loss of methodological rigor.

The Findings

1. Sample Characteristics

Among the 341 valid respondents, females constituted 56.3% (n=192) and males 43.7% (n=149). Age distribution showed 19.6% (n=67) under 30 years, 42.8% (n=146) aged 31-40, 28.2% (n=96) aged 41-50, and 9.4% (n=32) over 50 years. Regarding teaching experience, 15.8% (n=54) had less than 5 years, 26.7% (n=91) had 6-10 years, 31.1% (n=106) had 11-15 years, and 26.4% (n=90) had over 16 years. By school type, 57.8% (n=197) taught in urban secondary schools and 42.2% (n=144) in rural secondary schools.

2. Reliability Analysis

Reliability analysis was conducted to assess the internal consistency of the research instrument. Table 2 presents the Cronbach's alpha coefficients for all scales and subscales used in the study. All scales demonstrated good to excellent reliability, with Cronbach's alpha coefficients ranging from 0.825 to 0.903, exceeding the recommended threshold of 0.70. The high reliability coefficients indicate strong internal consistency among items measuring the same construct, supporting the validity of subsequent analyses.

Table 2. Reliability Coefficients of Research Scales

Scale/Subscale	Number of Items	Cronbach's Alpha	Reliability Level
LAT Acceptance	15	0.892	Good
- Cognitive Attitudes	5	0.864	Good
- Behavioural Intentions	5	0.875	Good
- Actual Use	5	0.903	Excellent
Influencing Factors	20	0.886	Good
- Teacher Training	5	0.871	Good
- Management Support	5	0.853	Good
- Technology Availability	5	0.867	Good
- Peer Influence	5	0.825	Good
Teaching Decision-Making	10	0.884	Good
- Decision-Making Process	5	0.842	Good
- Decision Quality	5	0.869	Good

3. Teachers' LAT Acceptance Status

Table 3 presents descriptive statistics for teachers' LAT acceptance across three dimensions. The results indicate that teachers' overall acceptance of LAT was moderately high (M=3.68, SD=0.79). Among the three dimensions, cognitive attitudes scored highest (M=3.85, SD=0.67), followed by behavioural intentions (M=3.78, SD=0.72), while actual use scored lowest (M=3.41, SD=0.93). This pattern suggests that teachers recognize LAT's value and express willingness to use it, but face challenges in implementing it in their actual teaching practice.

The significantly lower score for actual use (M=3.41, SD=0.93) in relation to behavioural intentions and cognitive attitudes reflects the substantial implementation gap in adoption of LAT. Such discrepancy implies that teachers are cognizant of the value of LAT and are willing to implement it in their classroom practice but are confronted with significant obstacles in implementation in the classroom. These obstacles are most likely due to institutional factors like time constraints in the stringent curriculum format of Chinese secondary schooling, technical issues in real-time use, inadequate ongoing technical support, as well as competing demands in an examination-driven schooling system. The higher standard deviation score of 0.93 for actual use in relation to other dimensions similarly implies higher variability in teachers' experience of implementing LAT, hinting that contextual factors may differentially affect teachers' progress towards converting intention into action.

Table 3. Descriptive Statistics of Teachers' LAT Acceptance

Dimension	Mean	Standard Deviation	Level
Cognitive Attitudes	3.85	0.67	High
Behavioural Intentions	3.78	0.72	High
Actual Use	3.41	0.93	Moderate
Overall Acceptance	**3.68**	**0.79**	**Moderately High**

Descriptive analysis also revealed notable differences in LAT acceptance between urban and rural secondary school teachers, as shown in Table 4. Urban teachers demonstrated consistently higher acceptance across all dimensions compared to rural teachers. The gap was most pronounced in actual use (urban: M=3.67, SD=0.82; rural: M=3.06, SD=0.95), suggesting that rural teachers face greater challenges in implementing LAT despite recognizing its value.

Table 4. Comparison of LAT Acceptance Between Urban and Rural Teachers

Dimension	Urban Teachers (n=197)		Rural Teachers (n=144)	
	Mean	SD	Mean	SD
Cognitive Attitudes	4.02	0.58	3.61	0.69
Behavioural Intentions	3.96	0.64	3.53	0.74
Actual Use	3.67	0.82	3.06	0.95
Overall Acceptance	**3.92**	**0.65**	**3.44**	**0.78**

4. Factors Associated with LAT Acceptance

Correlation analysis was performed to examine relationships between hypothesized influencing factors and LAT acceptance. Table 5 presents the correlation matrix. All four hypothesized factors showed significant positive correlations with LAT acceptance ($p<0.001$). Teacher training demonstrated the strongest correlation ($r=0.624$), followed by management support ($r=0.581$), technology availability ($r=0.537$), and peer influence ($r=0.429$). These results indicate that all four factors are associated with LAT acceptance, with teacher training showing the most substantial relationship. Further analysis of correlations between specific LAT acceptance dimensions and influencing factors revealed that teacher training had the strongest association with behavioural intentions ($r=0.648$, $p<0.001$), while technology availability showed the strongest correlation with actual use ($r=0.562$, $p<0.001$).

Table 5. Correlation Matrix of LAT Acceptance and Influencing Factors

Variable	1	2	3	4	5
1. LAT Acceptance	1.000				
2. Teacher Training	0.624***	1.000			
3. Management Support	0.581***	0.483***	1.000		
4. Technology Availability	0.537***	0.456***	0.536***	1.000	
5. Peer Influence	0.429***	0.392***	0.387***	0.418***	1.000

Note: *** $p < 0.001$

5. LAT Usage and Teaching Decision-Making

Table 6 presents the correlation analysis between LAT usage and teaching decision-making dimensions. LAT usage showed significant positive correlations with all teaching decision-making dimensions ($p<0.001$). The correlation with overall decision-making efficacy was strong ($r=0.578$), with slightly stronger association with decision quality ($r=0.594$) than with decision-making process ($r=0.536$). These findings suggest that teachers who more frequently use LAT tend to report higher efficacy in their teaching decision-making, particularly regarding the quality of decisions made.

Additional correlation analysis examining differences between urban and rural teachers revealed that the association between LAT usage and teaching decision-making was stronger among urban teachers ($r=0.612$, $p<0.001$) than rural teachers ($r=0.524$, $p<0.001$), further highlighting the urban-rural disparity in LAT implementation and benefits.

Table 6. Correlations Between LAT Usage and Teaching Decision-Making

Variable	1	2	3	4
1. LAT Usage	1.000			
2. Decision-Making Process	0.536***	1.000		
3. Decision Quality	0.594***	0.621***	1.000	
4. Overall Decision-Making Efficacy	0.578***	0.874***	0.918***	1.000

Note: *** $p < 0.001$

Discussion

In this section, analysed and interpreted the findings in relation to existing literature and theoretical frameworks. The discussion is organized into four key thematic areas:

1. LAT Acceptance Patterns and the Gap in Cognition-Practice

Moderate overall endorsement of secondary school teachers in Chongqing ($M = 3.68$) is in alignment with Teo et al. (2019) findings in terms of Chinese teachers' attitude towards instructional technology is favorable. The difference between the attitude ($M = 3.85$) and actual use ($M = 3.41$) is significant and confirms the gap between cognition and action. This gap in cognition and action shows that teachers are cognitively convinced about the pedagogical value of LAT but encounter significant challenges in implementing it in class.

Such gap is seen to be due to several reasons: institutional limitations in China's testing-oriented educational system, temporal constraints within crowded curricula, technological limitations in real-time implementation, as well as perhaps inadequate support during implementation. Zhang & Wang (2023) found this implementation gap in their research on Chinese technology adoption in education as well, observing that favorable attitudes were often not converted into persistent classroom practice as a result of system limitations.

2. Urban-Rural Digital Divide in Education Technology

Urban-rural disparity in acceptance of LAT is consistent with overall Chinese inequities in access and use of technology. Urban educators showed uniformly higher acceptance on all measures, with the largest discrepancy in actual use (urban: $M =3.67$; rural $M =3.06$). These results support findings in Li & Ranieri's (2013) study of unequal use of technology in Chinese urban vs. rural school settings, as well as Ahmad & Noraini's (2021) educational technology inequalities in developing countries.

These are driven by several factors: imbalanced hardware allocation, different opportunities for training teachers, different levels of support within organisations, and perhaps different perceived value for learning objectives in urban as opposed to rural areas. The consequences of such a divide are especially troubling insofar as they imply that educational technology is actually increasing educational inequalities as opposed to decreasing them.

3. Critical Factors in LAT Acceptance

The correlational analysis indicated significant correlations between the acceptance of LAT and all four hypothesized variables, with the strongest correlation found for teachers' training ($r=0.624$). This result emphasizes the pivotal role played in promoting educational technology uptake by professional development, affirming Kotrlik and Redmann's (2009) contention that training makes major contributions towards teachers' preparedness in the adoption of new technology.

Support from management ($r=0.581$) and technology availability ($r=0.537$) were also strongly correlated, supporting the instrumental function of organizational and infrastructural factors in the implementation of educational technology as established before in studies such as those of Al-Omoush (2021) and Karsh (2018).

These indicators imply that successful implementation of LAT entails an holistic measure of both human and technical aspects. The comparatively lower peer influence correlation (r=0.429) implies that in Chinese secondary school settings, LAT acceptance can be more firmly established on professional as well as organizational grounds rather than on peer level factors. This observation is significant in terms of implementation practices, as it implies that formal, formalized means would be superior to peer diffusion in facilitating LAT uptake in this environment.

4. LAT and Teaching Decision Making: Mechanisms and Implications

The high level of positive relationship between LAT use and teaching decision-making effectiveness (r=0.578) assures us that teaching decision-making can be significantly improved through learning analytics technology. Its high relationship with decision quality (r=0.594) implies that LAT's biggest impact is probably on the content of teaching decisions, not on decision procedures themselves.

This research uncovers numerous distinct mechanisms whereby LAT is seen to improve decision-making:

i. Instructional adaptation based on evidence: Teachers who utilized LAT reported higher capacity for adapting instruction based on factual information as opposed to relying on intuition
ii. Ability for early intervention: LAT use correlated with teachers' reports of capacity for identifying learning problems prior to their consolidation
iii. Capacity for Personalization: Increased LAT use correlated with higher levels of teachers' confidence in differentiating instruction according to students' individual needs
iv. Assessment precision: Teachers utilizing LAT reported improved ability to align assessments with learning objectives and interpret results meaningfully

More significant correlation between LAT usage and decision-making among urban teachers (r=0.612) than among rural teachers (r=0.524) adds weight to fears concerning the digital divide in learning benefits. Such difference is most probably caused by a constellation of factors: superior technical support, stronger support systems, as well as possibly higher data competence on the part of urban teachers who are in a better position to leverage decision-making benefits out of learning analytics technology.

Conclusion

In this research, studied acceptance of learning analytics technology among Chinese secondary school teachers in Chongqing and its implications for decision-making in teaching. The research findings identified relatively high general acceptance of LAT, but notable urban-rural variations in acceptance. Strong correlations for teacher training, managerial support, and technology presence explained acceptance of LAT, and usage of LAT had a strong and significant correlation with teaching decision-making capability.

Such findings provide empirical information about Chinese secondary schools' status in adopting LAT and identifying key drivers in ensuring efficient uptake. The findings suggest extensive measures in addressing training for professionals, organizational support, and IT setup are in place for ensuring efficient utilization of LAT. Particular emphasis should be given to addressing urban-rural imbalances for ensuring balanced dissemination of educational technology opportunities.

Among the constraints in the research are its use of self-reporting, possibly measuring subjective experience as opposed to objective reality, and being cross-sectional in nature and thus unable to allow inferences about causation in observed associations. The application of a geographic context in Chongqing may also limit generalizability across different locales and different technology and education contexts. Longitudinal designs must be applied in future studies in order to track trends in acceptance and use across time, mixed-method designs involving qualitative data in order to capture teacher experience in richer detail, and broader geographical reach in order to assess variations across locales. Greater investigation of the exact mechanisms through which learning analytics influence instructional decision-making would add still more to understanding of LAT's impact on learning. Despite these limitations, this research contributes substantially to learning analytics technology in schools at the secondary level and presents practical recommendations for

ensuring efficient use. By addressing variables identified as highly correlated to acceptance of LAT and leveraging the technology for better instructional decision-making, learning stakeholders can move towards informed, efficient, and just learning practices.

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