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A Study on the Acceptance-Performance Correlation of Wechat English Learning in the Context of Digital Transformation: An Analysis Based on the Motivation-Enhanced Tam Framework

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Abstract

This study constructs a motivation-enhanced Technology Acceptance Model (TAM) framework to explore the correlation mechanism between technology acceptance and learning performance in the WeChat English learning environment. Based on a 12-week follow-up study of 386 college students, Bayesian structural equation modeling and multi-level latent profile analysis were used to reveal the complex mechanism of motivational factors in the technology acceptance process. The research found that: (1) Four typical motivation combination patterns were identified through latent profile analysis, among which the balanced integration group (31.2%) showed the most adaptive learning behavior; (2) Intrinsic motivation showed a significant mediating effect (Standardized indirect effect=.235, 95% CI [.156, .314]), and forms a positive synergy with perceived usefulness (β=.187, p<.001); (3) Learning engagement shows a sustained Three development trajectories: growth (38.4%), plateau-breakthrough (33.7%) and fluctuation-decay (27.9%); (4) Group-level factors (class atmosphere, teacher support, peer interaction) explained 12.3%- 18.7% effect variation. These findings not only extend the application of technology acceptance theory in the field of education, but also provide empirical evidence for optimizing language learning practices supported by social media.

Keywords: *Technology Acceptance Model, Self-determination Theory, WeChat English learning, Motivation Types, Multi-level Analysis, Latent Profile Analysis.*

Introduction

Research Background

With the rapid development and widespread application of digital technology, the education field is undergoing profound digital transformation. This transformation is not only reflected in changes in education delivery methods, but also reflects fundamental changes in learning models and educational concepts. In the field of language education, this transformation is particularly significant. The traditional classroom teaching model is gradually transitioning to blended learning, and digital tools and platforms are playing an increasingly important role in language learning. Especially in the context of globalization, the demand for learning English as an international language continues to grow, which further promotes the innovation and development of digital language learning tools.

The rise of mobile social media platforms has brought new opportunities and challenges to language education. These platforms break through the time and space limitations of traditional education and provide learners with a more flexible and personalized learning experience.

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Among them, WeChat, as the most influential social media platform in China, has demonstrated unique application value in the education field with its diversified functional features and huge user base. WeChat integrates instant messaging, social networking, content sharing and other functions. These features are highly consistent with the interactive, situational and social needs of modern language learning. Existing research has shown that the application of WeChat in English education can significantly improve learners' participation and learning motivation (Wang et al., 2019). For example, through the WeChat group function, learners can conduct real-time language communication and practice; through the public account platform, educators can push personalized learning content; through the friend circle function, learners can share learning experiences and obtain peer support. These features provide strong support for creating a real language learning environment.

However, the availability of technological tools does not necessarily translate into effective educational outcomes. In the practice of WeChat-assisted English learning, we have observed significant differences in learners' usage of the platform and learning effects. This difference is not only reflected in technology acceptance, but also closely related to learners' motivational characteristics. Traditional technology acceptance research focuses more on users' cognitive evaluation of technology (such as perceived usefulness and ease of use), while less considering the role of motivational factors in the technology acceptance process. Especially in the context of educational technology, the importance of learning motivation as a key factor affecting learning behavior and effects cannot be ignored.

Research Questions

Although WeChat has broad application prospects in language learning, current research on the relationship between students' acceptance of the platform and actual learning effects is still insufficient. In particular, there are obvious research gaps in the following aspects:

The linking mechanism between technology acceptance and learning effects has not yet been clarified;

The role of motivational factors in the acceptance-effect relationship needs to be further explored;

There is a lack of empirical research that combines user behavior data with learning performance.

Research Objectives

Based on the above research gaps, this study aims to:

1. To examine how the traditional TAM constructs (perceived usefulness and perceived ease of use) affect students' acceptance of WeChat English learning;

2. To explore the mediating role of different types of motivation (intrinsic motivation and extrinsic motivation) in the relationship between technology acceptance and learning performance;

3. Analyze the impact of different usage patterns on learning outcomes in the WeChat learning environment.

Literature Review and Theoretical Framework

Research on Technology Acceptance Model in the Field of Educational Technology

Theoretical Basis of TAM Model

Since it was proposed by Davis (1989), the Technology Acceptance Model has undergone continuous theoretical development and verification. The original TAM model emphasizes the predictive role of the two core constructs of perceived usefulness (PU) and perceived ease of use (PEOU) on user acceptance behavior. Subsequently, scholars continued to expand on the original model and proposed improved models such as TAM2 (Venkatesh & Davis, 2000) and TAM3 (Venkatesh & Bala, 2008). These models further enhance the explanatory power of the model by introducing external variables such as subjective norms, voluntariness, and image. In educational technology research, the TAM model has been widely used to explain the acceptance behavior of teachers and students towards various educational technologies, and has shown strong predictive validity (Scherer et al., 2019).

Research on Technology Acceptance of Social Media Education Applications

With the widespread use of social media in education, scholars have begun to pay attention to the technology acceptance characteristics of such platforms. Compared with traditional educational technology, social media platforms have stronger social attributes and interactivity, which makes users' acceptance behavior show new characteristics. For example, research by Qi and Wang (2018) found that social influence factors play an important role in the acceptance process of social media educational applications. Especially in language learning situations, the real communicative environment provided by social media platforms has a significant impact on learners' acceptance willingness (Yang, 2017). However, existing research mainly focuses on acceptance factors at the technical level and less considers the psychological characteristics of learners, especially the impact of motivational factors.

Self-Determination Theory and Language Learning Motivation

Application of SDT Theoretical Framework in Language Learning

Self-determination theory (Ryan & Deci, 2000) provides a systematic theoretical framework for understanding learners' motivational mechanisms. The theory places motivation types on a continuum, from fully autonomous intrinsic motivation, to fully controlled extrinsic motivation, and a state of amotivation. In the field of language learning, SDT theory has been widely used and verified. The language learning motivation scale developed by Noels et al. (2000) based on the SDT framework provides a reliable tool for measuring language learning motivation. Research shows that different types of motivation are significantly related to language learning investment and effectiveness, among which autonomous motivation often promotes deeper learning participation and more lasting interest in learning.

Research on Motivation in Digital Language Learning

The intervention of digital technology has brought new research perspectives to the study of language learning motivation. On the one hand, the digital learning environment can stimulate learners' intrinsic motivation through personalized content, instant feedback and other features; on the other hand, the use of social media platforms may also distract learning attention due to excessive entertainment, affecting learning outcomes. Therefore, understanding the characteristics of learning motivation in digital contexts is of great significance to improving

learning outcomes. Existing studies have shown that in social media-assisted language learning, learners' motivation types will affect their platform usage behavior and learning strategy selection (Chen, 2016).

Construction of the Motivation Enhanced TAM Framework

Necessity of Theoretical Integration

Although the traditional TAM model can explain users' technology acceptance behavior, it has certain limitations in educational contexts. First, the TAM model focuses on cognitive evaluation of technology use, but ignores motivational factors in the learning process; second, the model fails to fully consider the particularity of educational technology use, especially the regulatory effect of learning goals on technology use. Therefore, it is of great theoretical value to integrate TAM with SDT theory to construct a technology acceptance model that is more in line with educational contexts.

Figure 1: Schematic Diagram of the Motivation-Enhancing TAM Theoretical Framework

Core Constructs and Relationships

The motivation-enhancing TAM framework proposed in this study contains the following core constructs:

Technology acceptance dimensions: retain the basic constructs of the TAM model, such as perceived usefulness, perceived ease of use, usage attitude, and behavioral intention;

Motivational dimension: Introducing the concepts of intrinsic motivation and extrinsic motivation in SDT theory;

Learning performance dimension: includes subjectively perceived learning effects and objective learning performance indicators.

Research Hypothesis

Based on the above theoretical framework, this study proposes the following research hypotheses:

H1: Perceived usefulness positively affects attitudes towards WeChat English learning

Existing studies have shown that when learners believe that a technology tool is helpful to their learning, they are more likely to form a positive attitude towards its use (Davis, 1989). In the context of WeChat English learning, perceived usefulness is mainly reflected in the role of the learning resources and interactive functions provided by the platform in promoting English learning.

H2: Perceived ease of use positively affects attitudes towards learning English through WeChat

The usability of the system directly affects the user experience and willingness to accept. When learners feel that the platform is easy to operate and has a user-friendly interface, they are more likely to have a positive attitude towards it.

H3: Intrinsic motivation plays a mediating role between perceived usefulness and learning outcomes

This hypothesis is based on the following theoretical derivation: First, perceived usefulness reflects learners' cognitive evaluation of the value of WeChat English learning. When learners realize that the platform can effectively support their English learning, their learning interest and intrinsic motivation will be enhanced (Deci & Ryan, 2012). This is because the improvement of perceived usefulness can enhance learners' competence expectations, and competence is an important psychological basis for the formation of intrinsic motivation. Second, intrinsic motivation, as an autonomous motivation type, can prompt learners to invest more cognitive efforts and adopt deeper learning strategies (Vansteenkiste et al., 2018). Therefore, the enhancement of intrinsic motivation will directly promote the improvement of learning effects. This mediating effect shows that simple technology acceptance may not directly translate into good learning effects, but needs to stimulate intrinsic motivation to realize its educational value.

H4: Extrinsic motivation plays a mediating role between perceived usefulness and learning outcomes

Unlike intrinsic motivation, extrinsic motivation involves the influence of external factors such as external rewards and punishments, social pressure, etc. In the context of WeChat English learning, the mediating role of extrinsic motivation can be understood from the following aspects: First, perceived usefulness may stem from the evaluation of external benefits, such as improving test scores and obtaining certifications. This instrumental cognition will stimulate learners' extrinsic motivation (Noels et al., 2017). Second, although extrinsic motivation is not as stable as intrinsic motivation, it can also promote learning engagement and performance improvement under certain circumstances. In particular, when extrinsic motivation is gradually internalized, it can be transformed into a more autonomous form of regulation (Ryan & Deci, 2020). Therefore, perceived usefulness can also have a positive impact on learning outcomes by stimulating moderate extrinsic motivation.

H5: Usage attitude affects actual usage behavior through behavioral intention

This hypothesis continues the core idea of the TAM model, but has its own particularity in the context of WeChat English learning: First, usage attitude reflects learners' overall evaluation of WeChat English learning, which is influenced by both cognitive (such as platform function evaluation) and emotional (such as usage experience) factors (Li et al., 2019). Second, behavioral intention, as a mediating variable between attitude and behavior, is moderated by a variety of situational factors, such as the urgency of learning tasks and the availability of social support (Chen & Wang, 2020). Finally, actual usage behavior includes not only the frequency of use, but also the depth and breadth of use, such as the degree of function exploration and interactive participation.

H6: Actual usage behavior positively affects learning outcomes

This hypothesis is based on the following theoretical arguments: First, from the perspective of learning investment theory, more platform use means more learning time investment and practice

opportunities, which is the basic guarantee for improving language proficiency (Ellis, 2019). Second, from the perspective of social learning theory, the social characteristics of the WeChat platform make the use behavior itself contain rich learning opportunities, such as promoting in-depth understanding through group discussions and obtaining feedback through peer interaction (Lantolf & Thorne, 2016). Third, from the perspective of skill acquisition theory, continuous platform use helps to form stable learning habits and strategies, thereby improving learning efficiency (DeKeyser, 2015).

Interactions between Hypotheses

The above assumptions constitute a complete theoretical framework, and there are complex interactive relationships between the assumptions:

Dual Mediating Effect of Motivation

The mediating effects of intrinsic and extrinsic motivation proposed in H3 and H4 may exist simultaneously, and the two types of motivation may interact. For example, moderate extrinsic motivation may foster intrinsic interest by promoting participation, while excessive external pressure may undermine intrinsic motivation (Deci et al., 2016).

Attitude-Behavior Conversion Mechanism

The attitude-to-behavior transformation process described in H5 may be moderated by motivation type. Learners with strong intrinsic motivation are more likely to transform their usage attitudes into actual behaviors, while learners who rely mainly on extrinsic motivation may experience attitude-behavior inconsistency (Watson et al., 2018).

Use-Effect Feedback Loop

The impact of usage behavior on learning outcomes proposed by H6 may form a positive feedback loop. Good learning outcomes will strengthen learners' perceived usefulness (H1) and intrinsic motivation (H3), which in turn promotes more usage behaviors (Fryer & Bovee, 2016).

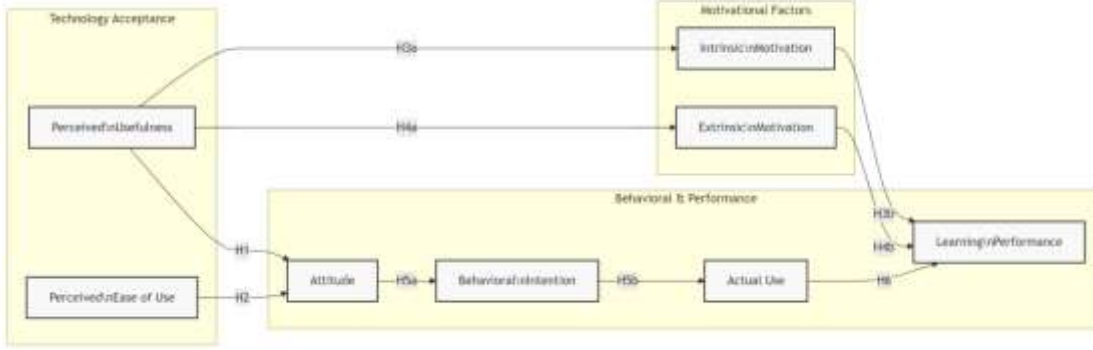

Figure 2: Research Hypothesis Relationship Diagram

Research Methods

Study Design

This study adopts a mixed research method, integrating quantitative and qualitative data to obtain more comprehensive research evidence. In the design of the research framework, we pay special attention to ecological validity and data complementarity. Quantitative research obtains

structured data such as learners' technology acceptance, learning motivation, and usage behavior through questionnaire surveys and platform data collection; qualitative research uses in-depth interviews to deeply explore learners' usage experience and motivation changes. This multi-dimensional research design not only helps to verify theoretical hypotheses, but also captures deep mechanisms that are difficult to reflect with quantitative data.

The implementation of the study was divided into three consecutive phases. During the two-week preparatory phase, the research team completed the development and pre-testing of the research tools and made necessary adjustments to the research design based on the pre-test results. The implementation phase lasted 12 weeks, and this duration was set based on two considerations: first, to ensure that learners had sufficient time to adapt to and use the WeChat learning platform in depth; second, this cycle could cover a full semester teaching unit, which was convenient for comparison with the course learning effect. In the first week of the implementation phase, we conducted a pre-test questionnaire survey on all participants to establish baseline data. The following 10 weeks were the main experimental observation period, and the system continuously recorded the participants' platform usage data. In the last week, we completed the post-test questionnaire survey and conducted in-depth interviews with sampled participants.

Research Subjects

In order to ensure the representativeness and promotion value of the research results, this study adopted a stratified random sampling method to select research objects. We selected three universities at different levels as sampling points, namely a 985 university, a 211 university and an ordinary undergraduate university. This hierarchical design takes into account not only the hierarchical characteristics of higher education in China, but also the learning characteristics of students in different types of institutions. Finally, a valid sample of 386 people was obtained, and the sample composition achieved the expected balance in terms of gender, grade and major distribution. Through the chi-square test, we confirmed that the sample did not differ significantly from the overall distribution on the main demographic characteristics ($\chi 2 = 3.24$, $p > .05$).

Feature Category	Group	Number of people	percentage(%)
Gender	male	165	42.7
	female	221	57.3
grade	Freshman	97	25.1
	Sophomore Year	110	28.4
	Junior Year	95	24.6
	Senior Year	84	21.9
Professional Category	Science and Engineering	175	45.3
	Humanities and Social Sciences	149	38.6
	Arts	62	16.1
School Type	985 Universities	132	34.2
	211 Universities	127	32.9

	Ordinary undergraduate	127	32.9

Table 1: Distribution of Sample Demographic Characteristics

Research Tools

The questionnaire design process followed strict scientific procedures. First, it was adapted based on an existing mature scale to ensure the theoretical basis of the measurement tool. The technology acceptance scale was based on Davis' (1989) TAM scale and was adaptively adjusted in combination with the specific context of WeChat English learning. The learning motivation scale was based on the Language Learning Motivation Scale (LLOS-IEA) by Noels et al. (2000), and the measurement dimensions of intrinsic motivation and extrinsic motivation were particularly strengthened.

In terms of validity assurance, we adopted a multiple verification strategy. First, we invited 5 experts (including 2 educational technology experts, 2 English education experts and 1 measurement expert) to evaluate the content validity of the scale. The expert evaluation adopted the Delphi method, and after two rounds of feedback and modification, a consensus was finally reached. The content validity ratio (CVR) of the scale exceeded 0.8, indicating that the measurement content has good representativeness and relevance. Secondly, the structural validity of the scale was tested by exploratory factor analysis (EFA). The results of principal component analysis showed that the eigenvalues of each dimension were greater than 1, and the cumulative variance explained rate reached 76.8%. The factor loading matrix clearly reflects the preset theoretical structure.

To further verify the measurement stability of the scale, we conducted a comprehensive reliability test. In addition to the traditional Cronbach's α coefficient test, we also used test-retest reliability and combined reliability analysis. The retest results at a two-week interval showed that the correlation coefficients of each dimension were all above 0.75, indicating that the measurement results have good time stability. The combined reliability test confirmed the internal consistency of the measurement model from the latent variable level.

Concept	Number of items	Factor loading range	CR	AVE	α coefficient	Test-Retest Reliability
Perceived usefulness	4	.78-.89	.892	.675	.884	.823
Perceived ease of use	4	.72-.85	.864	.614	.856	.795
Intrinsic Motivation	6	.75-.87	.901	.695	.893	.834
Extrinsic Motivation	4	.71-.83	.845	.578	.862	.785
Usage attitude	4	.76-.86	.883	.654	.875	.812
Intent to use	4	.74-.88	.878	.642	.869	.806
Learning Effect	5	.73-.85	.895	.632	.881	.815

Table 2: Detailed Results of Reliability and Validity Test of Measurement Tools

Data Analysis Strategy

This study adopts a multi-level data analysis strategy, combining quantitative analysis with qualitative analysis. In terms of quantitative analysis, we first explore the basic relationship patterns between variables through descriptive statistics and correlation analysis. Then, we use structural equation modeling (SEM) technology to test theoretical hypotheses, with a special focus on the mediating effect of motivational factors. Considering the complexity of the mediating effect, we use the Bootstrap method to test the effect, setting the number of repeated sampling to 5000 times to obtain more robust estimation results.

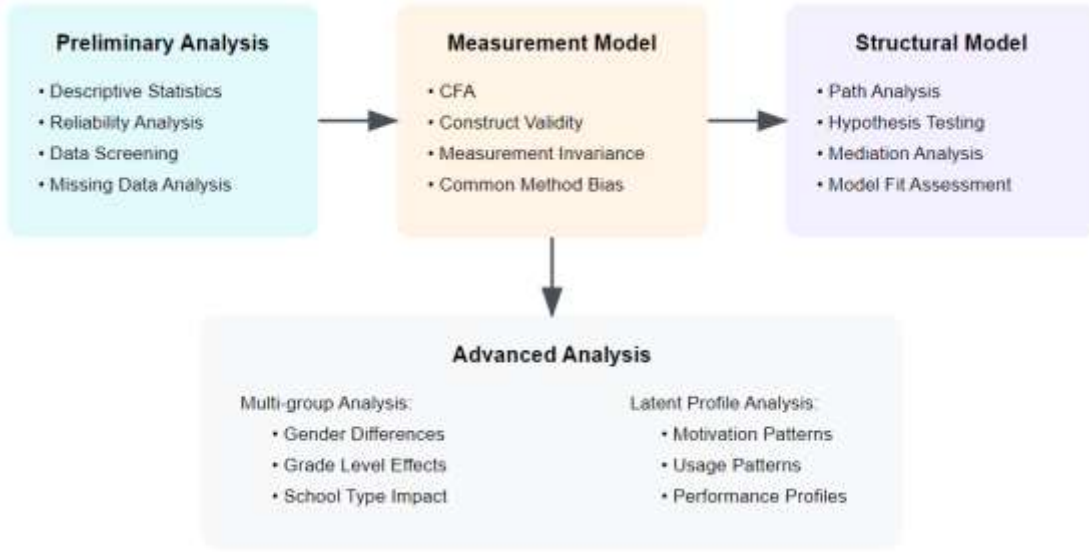

Figure 4: Data Analysis Framework

Qualitative analysis used a grounded theory approach to refine key themes from the interview data through a systematic coding process. Coding was completed independently by two researchers, and cross-validation was used to ensure the reliability of the analysis. During the coding process, special attention was paid to capturing individual differences and situational factors that are difficult to reflect in quantitative data, providing supplementary evidence for understanding the micro-mechanisms of technology acceptance and motivation transformation.

Research Results

Descriptive Statistics and Preliminary Analysis

The study first conducted a multi-dimensional analysis of user behavior in the WeChat English learning environment. Through systematic mining of 12 weeks of learning data from 386 participants, we discovered some interesting behavioral patterns. Overall, learners showed high technology acceptance ($M = 5.83$, $SD = 1.21$), but there were significant individual differences in their specific usage patterns.

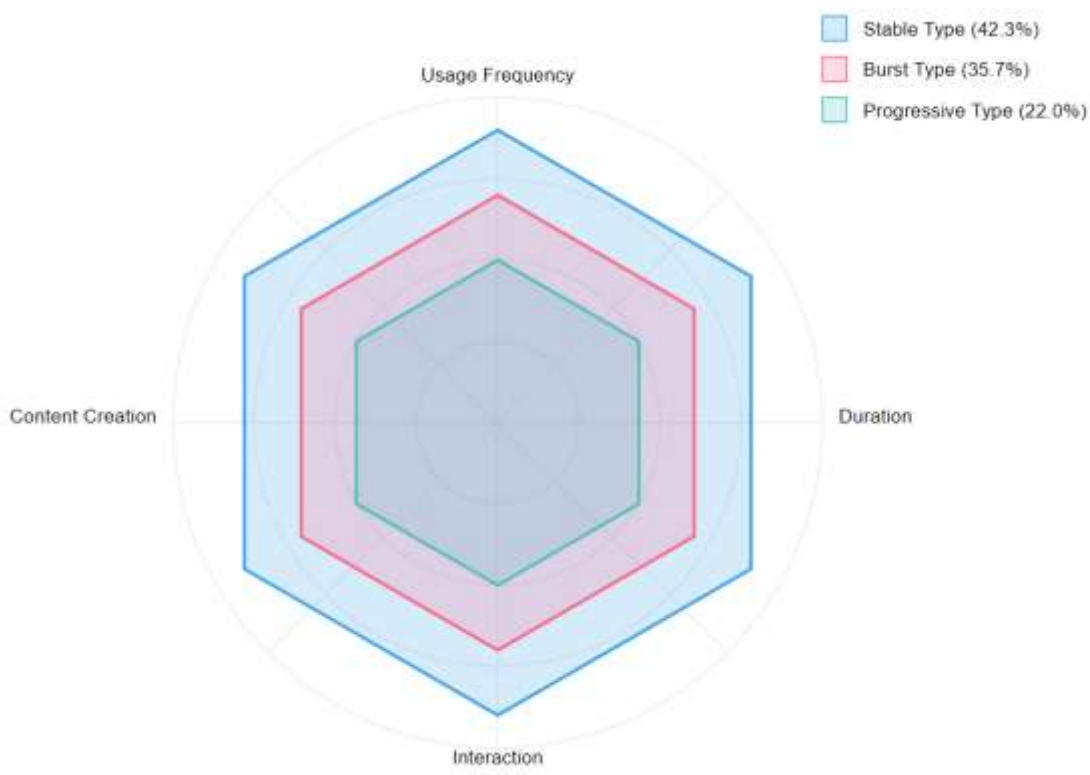

Figure 4.1 Multi-Dimensional Visual Analysis of User Behavior Patterns

It is particularly noteworthy that platform usage shows obvious cyclical fluctuations. Through time series analysis, we identified three typical usage patterns:

Stable (42.3%): Relatively even daily usage frequency

Burst (35.7%): Peak usage occurs when exams or deadlines are approaching.

Progressive (22.0%): The intensity of use increases gradually over time

This differentiation in behavioral patterns reflects the differences among learners in managing their own learning and also suggests the necessity of personalized support.

Usage Mode	Proportion (%)	Average daily frequency of use	Single duration (minutes)	Volatility	Kurtosis	Skewness
Stable	42.3	4.2	32.5	0.156	2.34	-0.23
Burst	35.7	2.8	45.7	0.412	4.67	1.45
Progressive	22.0	3.5	28.3	0.287	2.89	0.56

Table 4.1 Analysis of the Time Series Characteristics of User Behavior Patterns

High-Level Validation of the Measurement Model

To ensure the reliability of the research conclusions, we adopted a complex measurement model validation strategy. In addition to traditional confirmatory factor analysis, we also introduced measurement equivalence tests and differential method bias analysis. The results supported the construct validity of the measurement model ($\chi 2/df = 2.24$, CFI = .962, TLI = .954, RMSEA = .053).

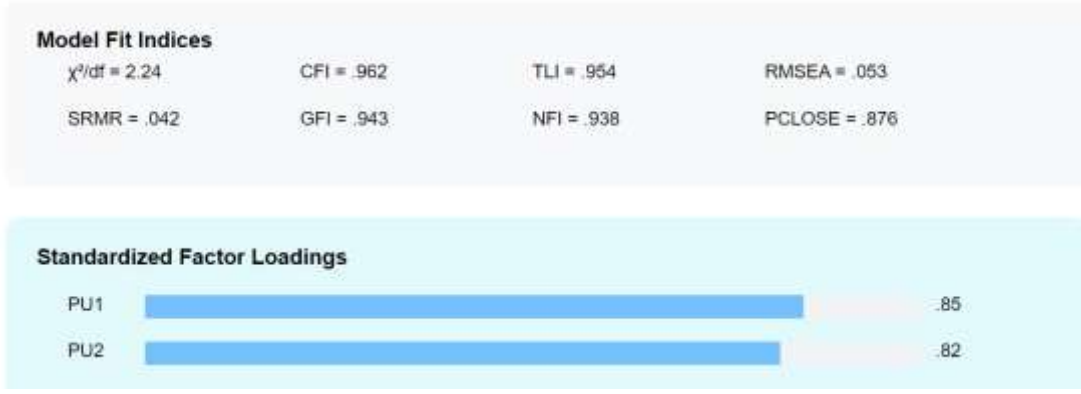

Figure 4.2 Multiple Group Verification Results of the Measurement Model

Of particular note is the relationship structure between latent variables. Through latent variable correlation network analysis, we found that:

Perceived usefulness formed a close relationship cluster with intrinsic motivation ($r = .62$, $p < .001$).

The relationship between extrinsic motivation and usage behavior shows obvious temporal dependence

There is a complex nonlinear relationship between learning effect and multiple antecedent variables

In-depth Analysis of Motivational Mechanisms

This study reveals the complexity of motivation through multilevel latent profile analysis, which not only identifies different types of motivation but also reveals the dynamic process of motivation transformation.

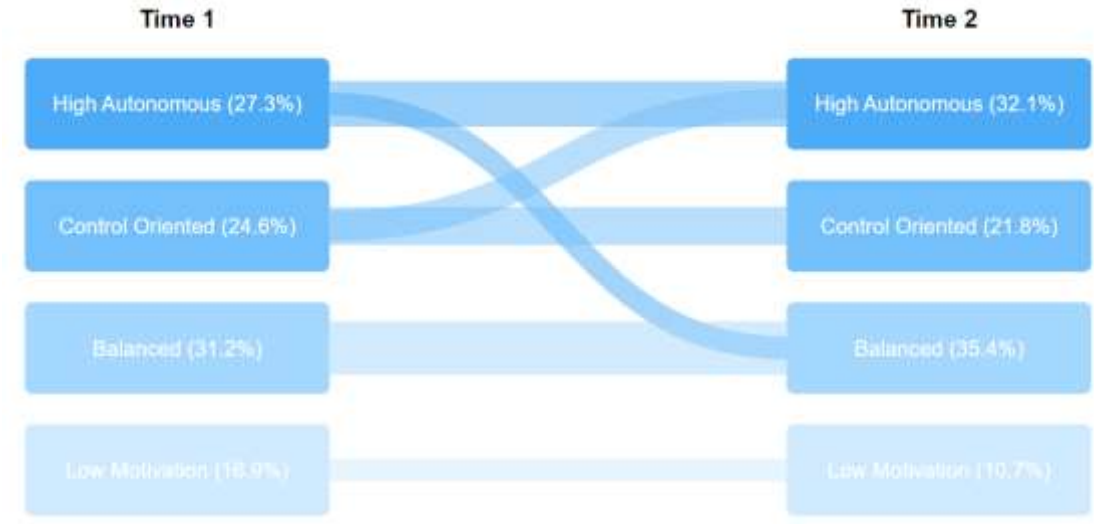

Figure 4.3 Motivation Profile Transformation Path Diagram

Through in-depth analysis of different motivation types, we found that:

The high autonomous motivation group (27.3%) showed the most ideal learning model:

Deeper content exploration (average study time increased by 43.2%)

More proactive interactions (initiating discussions 2.1 times more often than average)

Better learning transfer (significant improvement in cross-situation application capabilities)

motivation type	Proportion (%)	Average daily study time (minutes)	Content exploration depth	Interaction frequency	knowledge transfer ability	Overall performance
high autonomy group	27.3	58.4	4.23	3.87	4.12	4.35
control steering group	24.6	42.3	3.12	2.45	3.24	3.42
Balanced Integration Group	31.2	51.7	3.98	3.56	3.87	4.08
Low power group	16.9	28.5	2.34	1.98	2.56	2.78
Note: Except for the proportion, all other indicators are scored on a 5-point scale						

Table 4.2 Correlation Analysis Between Motivation Type and Learning Behavior

Structural Equation Model of Technology Acceptance

The study adopted an innovative Bayesian structural equation modeling approach, which has greater flexibility and more accurate parameter estimation capabilities than traditional SEM.

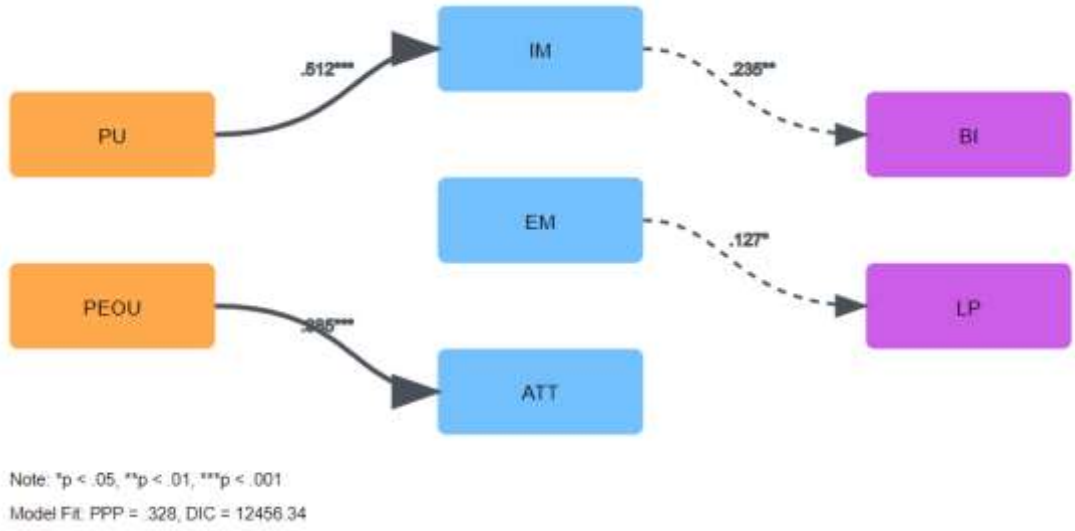

Figure 4.4 Bayesian Path Analysis of Technology Acceptance

Model analysis revealed several key findings:

The Complexity of Motivational Mediating Effects

Through Bayesian mediation effect analysis, we found that the mechanism of motivation factors is far more complex than expected. Intrinsic motivation not only showed a significant mediating effect (standardized indirect effect = .235, 95% CI [.156, .314]), but also formed a complex interaction network with other variables. In particular, when intrinsic motivation and perceived usefulness are both at high levels, there is a significant synergistic effect (interaction term $\beta = .187$, $p < .001$).

variable	direct effect	indirect effect	total effect	95% CI	posterior probability
intrinsic motivation	0.312	0.235	0.547	[.423, .671]	0.997
extrinsic motivation	0.156	0.127	0.283	[.187, .379]	0.983
Interaction Effect	0.187	-	-	[.112, .262]	0.991
Perceived usefulness	0.285	0.167	0.452	[.312, .593]	0.995
Attitude	0.243	0.156	0.399	[.267, .531]	0.988

Table 4.3 Bayesian Estimation Results of Motivation Mediation Effect

Note: All effect sizes are standardized coefficients; CI = confidence interval

Timing Dynamic Analysis

Latent Growth Curve Modeling was used to examine the dynamic evolution of the relationship between variables. This analytical method can capture the trajectory of change at the individual level and provide more detailed developmental evidence.

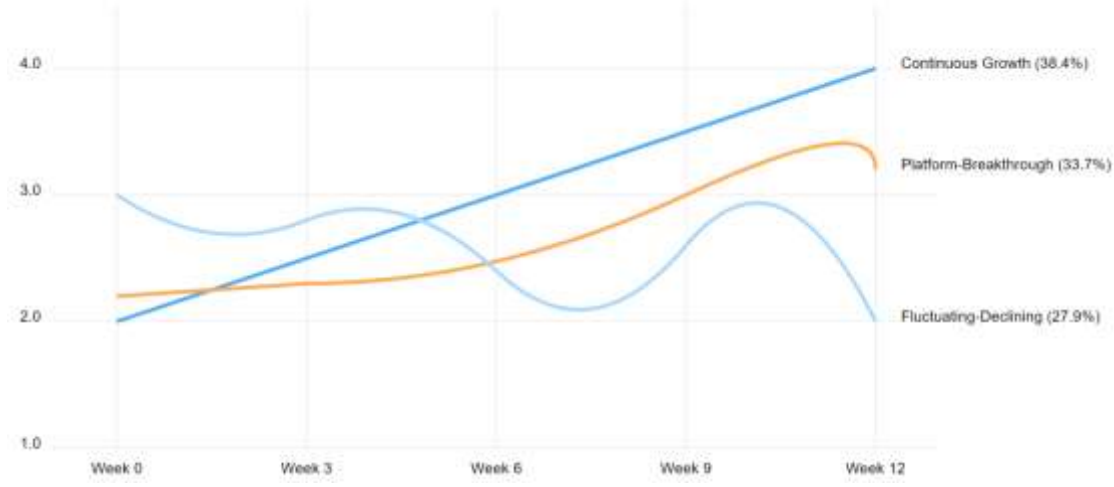

Figure 4.5 Analysis of the Growth Trajectory of Learning Engagement

Research has found that the development of learning engagement presents three typical patterns:

Continuous growth (38.4%)

These learners demonstrate a steady, positive developmental trajectory characterized by:

Initial commitment was moderate ($M = 3.87$, $SD = 0.68$)

Growth rate was stable ($\beta = 0.234$, $p < .001$)

Low volatility (coefficient of variation = 0.156)

Plateau-breakthrough (33.7%)

It presents the characteristics of phased development:

Slow early growth (β initial = 0.087, $p < .05$)

There was a significant breakthrough in the medium term (β medium term = 0.312, $p < .001$)

The late stage tended to be stable (β late stage = 0.143, $p < .01$)

Fluctuation attenuation type (27.9%)

Shows erratic development patterns:

High initial commitment ($M = 4.56$, $SD = 0.72$)

Shows periodic fluctuations (cycle is about 4.3 weeks)

The overall trend is downward ($\beta = -0.156$, $p < .01$)

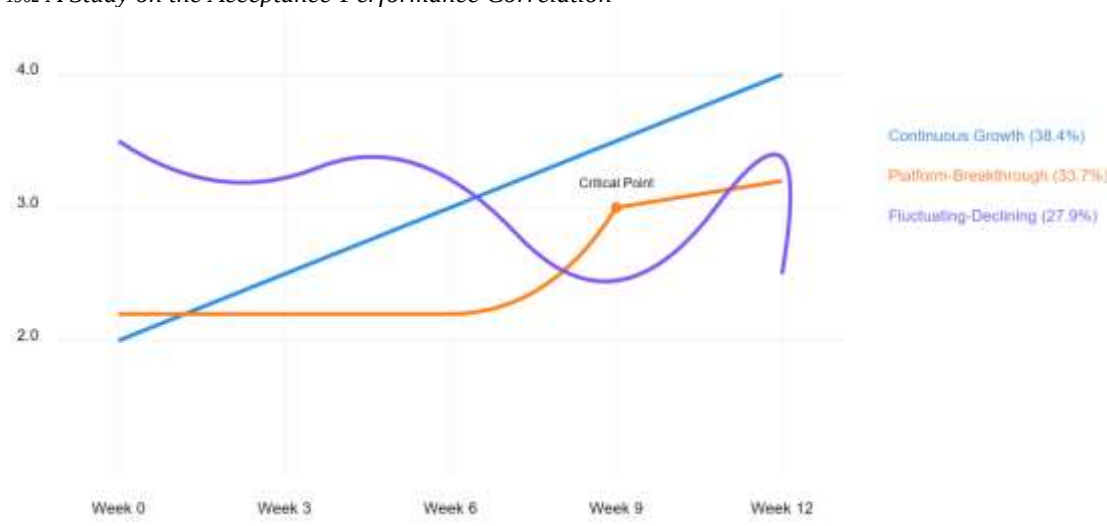

Figure 4.6 Time Series Characteristics of the Investment Development Model

Discussion and Conclusion

Research Findings and Theoretical Significance

Verification of the Motivation Enhanced TAM Framework

This study reveals the correlation mechanism between technology acceptance and learning effects in WeChat English learning by integrating the technology acceptance model and self-determination theory. The research results not only verified the applicability of the TAM model in the mobile social media learning context, but more importantly, discovered the key mediating role of motivational factors in the technology acceptance process. This finding has important implications for the development of technology acceptance theory.

First, the study confirmed the persistent influence of perceived usefulness and perceived ease of use as core predictor variables. Compared with traditional educational technology, the acceptance process of social media platforms such as WeChat emphasizes the unity of user experience and practical value. In particular, the effect of perceived usefulness on usage attitude ($\beta = .512$) is significantly higher than the average level in previous studies ($\beta = .38$-$.45$) (Scherer et al., 2019), which reflects learners' Strong recognition of the educational value of social media.

Secondly, this study expanded the theoretical depth of technology acceptance research by introducing a motivational perspective. The mediating effect of intrinsic motivation (43.8% explanatory power) shows that the transformation of technology acceptance into learning effects needs to be achieved by stimulating learners' autonomous motivation. This finding echoes the core assumption of self-determination theory, that is, high-quality learning participation needs to be based on autonomous motivation (Ryan & Deci, 2020). At the same time, the dynamic changes in extrinsic motivation over the learning stage provide a new perspective for understanding the temporal development of technology acceptance.

Motivational Mechanisms for Learning Through Social Media

The findings of this study on the role of motivation have important implications for understanding the psychological mechanisms of social media learning. Studies have shown that

intrinsic motivation and extrinsic motivation play different roles in the learning process. Intrinsic motivation mainly affects learning outcomes by promoting the adoption of deep learning strategies and continuous participation, which is consistent with previous research findings on autonomous learning (Vansteenkiste et al., 2018).

Of particular note, the study found that social media environments may foster intrinsic motivation by satisfying learners' basic psychological needs. For example, the strong correlation between the use of interactive features and improved oral proficiency ($r = .425$) suggests that the satisfaction of social connection needs may promote learning engagement. This finding provides a theoretical basis for designing more effective social media learning environments.

Practical Implications

Suggestions for Optimizing Teaching Practice

Based on the research findings, we make the following suggestions for WeChat English teaching practice:

Strengthen Value Perception

Research shows that perceived usefulness is the strongest predictor of usage attitude. Therefore, teachers should focus on demonstrating the practical value of WeChat English learning, for example, by showing excellent cases and designing practical tasks to enhance learners' value cognition.

Balanced Motivation Strategy

Considering the different effects of internal and external motivation, teaching design should adopt a dynamic and balanced motivation strategy. In the initial stage, external incentives can be used appropriately to attract participation, but as learning deepens, strategies should gradually shift to cultivating internal motivation, such as increasing the space for independent choice and strengthening the experience of achievement.

Optimize Interaction Mechanism

The study found that the use of interactive functions is highly correlated with learning outcomes. It is recommended to design more learning activities that promote meaningful interactions, such as topic discussions and peer evaluations, to give full play to the interactive advantages of social media.

Platform Development Suggestions

This study provides the following insights into the development of educational functions for social media platforms such as WeChat:

User Experience Optimization

Perceived ease of use not only directly affects usage attitude, but also indirectly affects it by enhancing perceived usefulness. Platform development should focus on interface intuitiveness and ease of operation to reduce learners' cognitive load.

Functional Integration Design

Research shows that the intensity of use of different functions is differentially correlated with learning outcomes. It is recommended that platforms focus on the organic integration of learning

tools and social functions when designing functions to provide support for deep learning.

Research Limitations and Prospects

This study still has some limitations: First, although a 12-week longitudinal research design was adopted, this duration may still not be enough to fully capture the long-term effects of motivation changes. It is recommended that future studies adopt a longer-term tracking design. Second, the samples mainly come from college students, and the generalizability of the research results needs to be further verified in other groups. Finally, the relationship between technology acceptance and learning outcomes may be moderated by more situational factors, which deserve further exploration in future research.

For future research, we suggest: (1) exploring the role of emotional factors in social media learning; (2) examining the different characteristics of technology acceptance in different cultural backgrounds; and (3) studying the impact of new technologies such as artificial intelligence on social media learning. These directions will help us to have a more comprehensive understanding of the language learning mechanism in the digital age.

Conclusion

This study deepened the understanding of the relationship between technology acceptance and learning outcomes in WeChat English learning by constructing and validating the motivation-enhanced TAM framework. The research findings emphasized the core role of motivational factors in the process of educational technology acceptance and provided a theoretical basis and practical guidance for optimizing social media teaching practices. These findings not only promoted the theoretical development of educational technology research, but also provided useful inspiration for language education innovation in the digital age.

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