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TikTok as an Educational Tool: Questionnaire Development and Validation in Chinese Educational Settings

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Abstract

As an emerging social media platform, TikTok has garnered extensive academic attention in China due to its widespread popularity and potential as an educational tool. This study focused on developing and validating a questionnaire designed to measure TikTok's adoption, purpose, and educational usage among undergraduate students within Chinese educational settings. Constructed through a robust scale development process, including exploratory factor analysis, the questionnaire aims to ensure reliability and validity. A sample of 221 undergraduate students from Henan Province, China, was surveyed using random sampling techniques. The results indicated that the key reflective variables for TikTok adoption include perceived usefulness, perceived ease of use, and social influence, while the primary purposes of TikTok usage are identified as socialization, entertainment, and informativeness. The questionnaire demonstrated good internal consistency, as reflected by its Cronbach's alpha. Overall, the study confirms that the newly developed questionnaire possesses significant psychometric properties, making it a valuable tool for further academic research and practical application in educational contexts.

Keywords: TikTok Usage, Educational Usage, Adoption of TikTok, Purpose of TikTok, Undergraduate Student, Scale Development

Introduction

In the digital era, social media platforms have evolved beyond their original roles of entertainment and connectivity. A plethora of global studies has substantiated the educational utility of TikTok. Radin and Light (2022) assert that integrating social media platforms like TikTok into higher education constitutes an effective approach for both expanding course materials and cultivating a knowledge base suitable for the 21st century. Notably, TikTok excels as a platform for student engagement and knowledge dissemination, owing to its user-friendly interface that simplifies content creation, editing, and sharing.

Furthermore, platforms such as TikTok, Instagram, and YouTube are accessed by younger individuals far more frequently throughout the day than traditional online educational platforms, with social media's use for educational objectives gaining marked popularity among university students (Carter, 2022). Additionally, university undergraduates, benefiting from greater autonomy in time management, are spending more time on social media than ever before, which enhances their sense of independence.

TikTok is the leading short video platform among young users in China, particularly favored by those aged 18 to 30, a demographic predominantly comprised of university students (Juliang, 2023a). This group swiftly adapts to the evolving media landscape, seamlessly integrating TikTok's functionalities such as video production, interaction, live streaming, and consumption into both their daily lives and educational activities (Wang, 2020). In educational settings, instructors often guide students in utilizing TikTok for course-related tasks, although students typically assume a passive role in completing these learning activities. For instance, Zhai and Razali (2021) developed a curriculum where students first acquired basic TikTok skills and viewed examples before creating their videos in English to enhance their communication abilities. However, the use of social media like TikTok at universities is generally voluntary and occurs within an informal context. If educational activities are effectively incorporated into social media usage, students could potentially achieve a broader and deeper understanding online compared to traditional e-learning platforms (Srivastava, 2012).

Although primarily a platform for entertainment, TikTok has increasingly become a venue for educational content, enhanced by instructors incorporating it into their lessons. Data indicate significant growth in this area: between January and November 2022, the number of college live streams on TikTok surged to 21,103, marking a 46% increase from the 14,463 streams recorded throughout 2021. This growth is further evidenced by the engagement levels, with over 95 million users having watched these college live streams, and nearly 200 million 'likes' recorded on such content (Juliang, 2023b). This trend underscores TikTok's expanding role in the educational landscape, transitioning from mere entertainment to a valuable educational tool.

The voluntary use of TikTok by undergraduate students for educational purposes represents a burgeoning area of research. Although significant strides have been made in exploring the educational utility of social media platforms like Facebook, further studies are necessary to understand TikTok's role in this context. Over the past decade, researchers have scrutinized the educational implications of popular social media, notably through the work of Mazman and Usluel (2010), who developed a structural model to examine Facebook's educational usage. This model, which was validated with data from 606 voluntary users, nearly 70% of whom were university students, includes factors such as the Adoption of Facebook and the Purpose of its users, influencing its Educational Usage.

Like Facebook, TikTok serves as a social media application, but it is distinctly geared towards short video content creation and sharing, incorporating features that facilitate socializing and interaction. Its emphasis on user expression and creativity is likely a key factor attracting young users. This shift highlights TikTok's potential as a novel social and technological tool for educational engagement, meriting further academic investigation into its impacts and applications in educational settings.

This study highlights the subjectivity of the users and examines the educational use of TikTok by undergraduate students, developing questionnaires to clarify the factors influencing the adoption of TikTok by undergraduate students, the purpose of using TikTok, and their impact on generating educational TikTok use behaviours. Thus, it fills the research gap to some

extent. In addition, it gives policymakers and educational practitioners a better understanding of the use of TikTok in higher education, enabling them to build better models of new media technology use.

As previously mentioned, the widespread adoption of social media platforms such as TikTok among undergraduate students in China has sparked scholarly interest in their potential educational applications. While some studies have demonstrated the viability of social media for educational purposes, including TikTok's use as a teaching tool, its use is predominantly user-driven, with undergraduates typically preferring to engage with these platforms voluntarily in informal settings. To investigate the educational use of TikTok among undergraduates more thoroughly, it appears necessary to develop a reliable and valid questionnaire. Consequently, the sole purpose of this research is to bridge this gap by validating the developed questionnaire, specifically assessing its psychometric properties in terms of validity and reliability.

Adoption of TikTok

A review of the literature on the educational use of social media reveals that numerous methodologies have been developed to assess TikTok's utilization. Engaging university students in TikTok's educational applications necessitates their initial intention to adopt the platform. Predominantly, the Technology Acceptance Model (TAM) has been employed in academic research to analyze social media adoption, resulting in diverse outcomes (Rababah et al., 2017). Studies, for instance, have examined how perceived usefulness and ease of use influence the behavioral intention to use social media, with results consistently showing a positive impact of these factors on user intentions (Al-Khasawneh et al., 2022; Akar & Mardikyan, 2014). In China, TAM is widely used to evaluate TikTok adoption. Yan (2022) developed a model that explains the continued use of TikTok among older adults by integrating factors such as ease of use, usefulness, interactivity, situational awareness, and perceived risk, which significantly affect their adoption decisions. Xiang (2020) similarly analyzed the factors influencing university students' continued use of TikTok, identifying ease of use, perceived usefulness, and enjoyment as key drivers of initial engagement.

Al-Khasawneh et al. (2022) utilized the TAM to examine the factors that influence the adoption of the TikTok app in Jordan, focusing on the validity of perceived usefulness and ease of use. The study identified additional variables such as perceived enjoyment, sense of belonging, and user-generated content as influential for TikTok adoption. Concurrently, Guner and Acarturk (2020) enhanced the original TAM framework by integrating social influence and facilitating conditions, demonstrating their positive impact on the adoption of information and communication technologies (ICT) among older adults. Vahdat et al. (2021) further expanded the TAM to include social and peer influences. In a specific focus on TikTok, Jia et al. (2023) explored and confirmed the sources of social power, underscoring the pivotal role of social influence in shaping users' intentions to continue using the platform. Therefore, in this research, the reflective variables for TikTok adoption are defined as perceived usefulness, perceived ease of use, and social influence.

Purpose of TikTok

Research into social media often extends beyond adoption to examine users' motivations, frequently utilizing the Uses and Gratifications Theory (U&G). This theory posits that individuals engage with media to fulfill specific needs and achieve satisfaction, with media usage occurring only when it meets these user-defined requirements (Swanson, 1979).

Researchers have applied U&G to explore the various purposes and demands of social media usage. McQuail (1997) categorizes these into four fundamental needs: entertainment and leisure, which alleviate real-life stress and tension; social relations, enhancing communication and expanding social interactions; self-identity, fostering a sense of social identity and respect from peers; and environmental monitoring, which involves gathering necessary information for oneself or others. Gupta and Bashir (2018) constructed a reliable and valid questionnaire designed to measure the diverse purposes of social media usage. Their study surveyed university students in India, identifying academic, socialization, entertainment, and informativeness as the primary Purposes for using social media.

Relevant research on TikTok usage has consistently highlighted three primary purposes for the platform: entertainment, information, and social interaction. Mackey (2021) noted that the appeal of TikTok primarily derives from its capacity to entertain, inform, and facilitate social connections. Users typically engage with the app for enjoyment, relaxation, and as an escape from their immediate realities. The platform's ability to set trends and its widespread popularity also encourage users to seek information, keeping them updated on current trends and broader social media activities. Additionally, TikTok's interactive features such as comments, likes, shares, duets, stitches, and live videos enhance its socialization capabilities, making it an effective tool for user interaction.

Zhou et al. (2021) conducted a factor analysis that categorized user preferences on TikTok into three themes: information and knowledge acquisition, leisure and entertainment, and visual appreciation. Nuzuli (2022), from a Uses and Gratifications (U&G) perspective, identified that the primary motivations for using TikTok include information gathering, social interaction, and entertainment. Based on these findings, this study will focus on socialization, entertainment, and informativeness as the key purposes reflecting TikTok usage.

In the realm of research on the educational applications of social media, Mazman and Usluel (2010) synthesized existing literature to conduct an extensive study on Facebook's educational use. They developed a structural model that encapsulates three primary variables: Facebook adoption, purpose of use, and educational usage. Their findings revealed that user adoption significantly influences educational usage, to use Facebook serving as a mediating variable. Subsequently, Manasijević et al (2016); Arteaga Sánchez et al (2014) have validated this model, further confirming its applicability and robustness. As an emerging social media platform, TikTok can also be analyzed within the same framework used for Facebook. However, due to differences in functionality between TikTok and Facebook, adjustments are necessary for the variables reflecting adoption and purpose. This modification ensures that the model accurately captures the unique aspects of TikTok’s use and user engagement.

Method

Few scholars have focused on influencing factors targeting educational usage of TikTok by undergraduate students. To fill this gap, we primarily attempted to develop a reliable and valid questionnaire to test the influencing factors behind this usage behaviour. As mentioned above, the focus of the measurements in this questionnaire is educational usage of TikTok, testing the influence of adoption and purpose on it. Specific procedures for development will be explored in this section.

Item Generation Procedure

Within the theoretical framework of this study, statements related to the use of TikTok were developed to capture university students' educational utilization of the platform.

Consequently, this scale employs a comprehensive assessment procedure introduced by (Likert, 1932). From previously developed tools, we identified 37 items pertinent to the use of social networks. Like prior studies, this research also utilizes a scale. Initially, the items were assessed using a five-point Likert scale. However, based on expert recommendations and considering the statistical significance necessary for structural equation modeling analysis in this study, the scale was revised to a seven-point format. Anchor values range from 1 ("strongly disagree") to 7 ("strongly agree"). This extensive literature review guided us in creating a tool with robust psychometric properties to measure undergraduates' educational use of TikTok. When used in the Likert format, the granularity of these items proves beneficial (DeVellis, 2016).

Participants

To pilot the instrument, respondents were recruited from Pingdingshan University, located in Henan Province—China's most populous province, home to 56 general undergraduate institutions with a combined student body of 1,371,400 (EDHP, 2023). Recognized by the Ministry of Education and sponsored by the Henan Provincial Government, Pingdingshan University is a full-time undergraduate institution that offers 56 programs and has a diverse enrollment of over 20,000 students from 29 provinces across China. This demographic diversity makes it an ideal representative sample for research. Despite TikTok's widespread popularity among undergraduates, it is important to note that not all students may have used the platform. Consequently, prior experience with TikTok is a prerequisite for participation in this study.

Regarding sample size, the widely accepted guideline is the standard proposed by Gorsuch (2013), which suggests that the ratio of the number of items to sample size should exceed 1:5. Accordingly, this study determined its sample size based on this criterion. With 37 items in the questionnaire, the required number of participants needed to meet this ratio is at least 185. A random sampling method was employed, selecting undergraduate students from the university as participants. In the initial phase of the research, 250 questionnaires were distributed, resulting in 236 responses. Each returned questionnaire was meticulously examined to ensure its completeness and to identify any discrepancies, misplaced outliers, or missing values (Hair et al., 2010). Fifteen questionnaires were excluded due to incomplete information. Consequently, the final dataset for analysis included responses from 221 participants.

Content Validity

Content validity for the research instrument was initially established following the recommendations of Dorussen et al (2005), involving three experts for validation. This team included two specialists in new media and one expert in Structural Equation Modeling (SEM). Their primary task was to identify and resolve potential issues related to the design, format, and syntax of the survey tool, as well as to estimate the time required for completion. Additionally, they provided constructive criticism and suggestions to enhance the tool's effectiveness and were encouraged to give feedback on content validity and terminology, taking local conditions into account. To deepen the understanding of this expert feedback, three online discussions were conducted.

Modifications were made to the tool based on the collected feedback. Specifically, the Likert scale was standardized to a seven-point format ranging from "1" (strongly disagree) to "7" (strongly agree), replacing the original five-point scale to minimize confusion and enhance

reliability in factor analysis within SEM. Further improvements included replacing unclear terms with expert-recommended terminology and reordering some of the items. These revisions confirmed that the TikTok Educational Usage Survey is a sufficiently valid instrument for piloting.

Data Analysis

The data collected was analysed to measure the reliability and validity of the questionnaire. Exploratory Factor Analysis and Cronbach's alpha were used to assess the validity and reliability of the questionnaire.

Exploratory Factor Analysis

Child (2006) emphasized that the primary objective of Exploratory Factor Analysis (EFA) is to uncover potential underlying structures among a group of interrelated variables, without imposing preconceived patterns on the outcomes. The goals of factor analysis are not solely exploratory; they also include clarifying the substantive meanings of factors, such as latent constructs, and assisting researchers in determining the exact number of these constructs that underpin a specific set of items or variables. This approach helps to ensure that the analysis provides a clear and precise interpretation of the data.

The specific process of factor analysis involves three fundamental stages: Firstly, selecting the appropriate extraction technique is crucial, with Principal Component Analysis being a widely recognized method used to identify underlying dimensions. Secondly, evaluating factor retention is essential, where researchers often use statistical tests such as the Kaiser Criterion, which relies on eigenvalues to determine the significance of each factor, generally retaining those with eigenvalues of 1.00 or higher. Lastly, the choice of rotation method, with Varimax rotation being a powerful technique in factor analysis that maximizes the variance of loadings within each factor to clarify the association between variables and specific factors. This method is user-friendly in software like SPSS, helping to make clear decisions in research design and enhance construct validity by providing a distinct and interpretable factor structure.

EFA for Adoption

The EFA, utilizing the principal component analysis (PCA) extraction method with Varimax rotation, was conducted to confirm the three dimensions of adoption, ensuring that the items were correctly loaded onto their respective factors. This analysis specifically targeted the 15 items distributed among the sub-constructs of Adoption: Perceived Usefulness (5 items), Perceived Ease of Use (5 items), and Social Influence (5 items). Prior to the PCA, the data's suitability for factor analysis was ascertained. The KMO measure, a critical indicator of sampling adequacy, registered at 0.900, well above the recommended threshold of 0.6 (Kaiser, 1974), confirming the data's appropriateness for analysis. Additionally, Bartlett's test of sphericity confirmed statistical significance ($p < 0.001$), further validating the structure of the data for EFA. The indicators used in the analysis, along with the associated thresholds, are detailed in Table 3.1. The results from both the KMO measure and Bartlett's test of sphericity, essential for advancing the factor analysis, are also included in this table.

Table 1
Results of KMO and Bartlett's Test for Adoption

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.900
Bartlett's Test of Sphericity	Approx. Chi-Square	1909.621
	df	105
	Sig.	0.000

PCA was employed to evaluate the three factors in Adoption. The eigenvalues from this analysis revealed that these factors accounted for 67.540% of the total variance, a finding detailed in Table 3.2. This level of variance explanation is consistent with the benchmark set by Williams et al. (2010), who suggested that a total variance explanation exceeding 50% is generally acceptable in factor analysis. Specifically, the eigenvalues for the three identified factors were 6.470, 2.533, and 1.128, respectively, derived from the original 15 items. This decomposition collectively accounted for 67.540% of the cumulative variance, thereby affirming that the total variance explained for Adoption not only meets but exceeds the acceptable threshold of 50%, underscoring the robustness of the factor structure in capturing the essential dimensions of Adoption.

Table 2
Results of Total Variance Explained for Adoption

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Com	Total	% of Var	Cum %	Total	% of Var	Cum %	Total	% of Var	Cum %
1	6.470	43.132	43.132	6.470	43.132	43.132	3.624	24.161	24.161
2	2.533	16.886	60.018	2.533	16.886	60.018	3.332	22.212	46.373
3	1.128	7.523	67.540	1.128	7.523	67.540	3.175	21.168	67.540

**Note: Com=Component, Var=Variance, Cum=Cumulative*

In this study, the rotated component matrix yielded favorable outcomes, confirming the division of adoption into three distinct factors as depicted in Table 3.3. All factors demonstrated loadings above 0.5, eliminating the need for item deletion. Specifically, the first factor, Perceived Usefulness (PU), comprised five items (PU1, PU2, PU3, PU4, and PU5) with loadings of 0.760, 0.850, 0.768, 0.713, and 0.753, respectively. The second factor, Social Influence (SI), included another set of five items (SI1, SI2, SI3, SI4, and SI5) with respective loadings of 0.694, 0.729, 0.867, 0.852, and 0.813. Lastly, the third factor, Perceived Ease of Use (PEOU), consisted of items PEOU1, PEOU2, PEOU3, PEOU4, and PEOU5, with loadings of 0.615, 0.754, 0.713, 0.583, and 0.765 on this factor.

Table 3
Results of Rotated Component Matrix (Adoption)

	1	2	3
PU1	0.76		
PU2	0.85		
PU3	0.768		
PU4	0.713		
PU5	0.753		
SI1		0.694	
SI2		0.729	
SI3		0.867	
SI4		0.825	
SI5		0.813	
PE0U1			0.615
PE0U2			0.754
PE0U3			0.713
PE0U4			0.583
PE0U5			0.765

EFA for Purpose

Similarly, to assess Purpose, PCA was employed to evaluate three constructs: Socialization (SO), Entertainment (EN), and Information (IN), dividing 15 items into three substructures with five items each. The KMO measure recorded a value of 0.912, significantly exceeding the recommended threshold of 0.6 Kaiser (1974), indicating the data was suitable for further analysis. Bartlett's test of sphericity also reached statistical significance ($p < 0.001$), confirming the factorability of the data. Additionally, PCA with Varimax rotation was used to analyze the three factors within purpose. Eigenvalues indicated that these factors accounted for 70.991% of the total variance, a result exceeding the acceptable threshold of 50%. However, the results from the overall rotated component matrix indicated that the second factor, categorized as Entertainment (EN) with items EN1, EN2, EN3, EN4, and EN5, showed that EN3 had a loading of less than 0.5 on factor 2 and a higher loading of 0.614 on factor 1, necessitating the deletion of this item.

Following the removal of item EN3 due to low loadings, the Purpose construct was redefined. The revised KMO value of 0.907, well above the acceptable threshold of 0.6, and a significant Bartlett's Test of Sphericity confirmed the data's suitability for EFA, as presented in Table 3.4. The analysis retained three factors, collectively accounting for 70.991% of the total variance, thus exceeding the study's threshold of 50%. The eigenvalues for each factor, all above 1, were 7.012, 1.961, and 1.204, detailed in Table 3.5.

Table 4
Results of KMO and Bartlett's Test for Adoption (Re-Specification)

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.907
Bartlett's Test of Sphericity	Approx. Chi-Square	2108.023
	df	91
	Sig.	0.000

Table 5
Results of Total Variance Explained for Purpose (Re-Specification)

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Com	Total	% of Var	Cum %	Total	% of Var	Cum %	Total	% of Var	Cum %
1	7.012	50.088	50.088	7.012	50.088	50.088	3.586	25.617	25.617
2	1.961	14.010	64.098	1.961	14.010	64.098	3.390	24.211	49.828
3	1.204	8.600	72.697	1.204	8.600	72.697	3.202	22.869	72.697

**Note: Com=Component, Var=Variance, Cum=Cumulative*

The results from the rotated component matrix, as shown in Table 3.6, indicated robust factor loadings. The first factor, Socialization (SO), comprised five items: SO1, SO2, SO3, SO4, and SO5, with loadings of 0.739, 0.818, 0.677, 0.873, and 0.864, respectively, with none suggested for removal. The second factor, Entertainment (EN), now included four items (EN1, EN2, EN4, and EN5) following the removal of EN3, with respective loadings of 0.813, 0.860, 0.633, and 0.785. The third factor, Informativeness (IN), consisted of IN1, IN2, IN3, IN4, and IN5, all retained due to satisfactory loadings of 0.620, 0.739, 0.750, 0.816, and 0.781 on factor 3.

Table 6
Results of Rotated Component Matrix (Adoption) (Re-Specification)

	1	2	3
SO1	0.739		
SO2	0.818		
SO3	0.677		
SO4	0.873		
SO5	0.864		
EN1		0.813	
EN2		0.860	
EN4		0.633	
EN5		0.785	
IN1			0.620
IN2			0.739
IN3			0.750
IN4			0.816
IN5			0.781

EFA for Educational Usage

Finally, the seven items related to Educational Usage underwent PCA. Before conducting the PCA, the data's suitability for factor analysis was confirmed by the KMO measure, which registered at 0.899, well above the recommended threshold of 0.6 (Kaiser, 1974). Additionally, Bartlett's Test of Sphericity Bartlett (1954) achieved statistical significance, further validating the correlation matrix's appropriateness for factor analysis. Details of these tests are provided in Table 3.7.

Table 7
Results of KMO and Bartlett's Test for Personal Factors

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.899
Bartlett's Test of Sphericity	Approx. Chi-Square	901.770
	df	21
	Sig.	0.000

PCA was employed to evaluate Educational Usage (EU), with comprehensive results presented in Table 3.8. The analysis identified a single factor as the dominant explanatory component for variance within the EU dataset. This principal component, initially exhibiting an eigenvalue of 4.537, accounted for 64.819% of the total variance. As this is the only eigenvalue exceeding the threshold of 1, it becomes the exclusive focus for further analysis. The "Extraction Sums of Squared Loadings" column in the PCA output confirms that no additional factors made significant contributions to explaining the variance. This finding aligns with the study's expectations and validates that only the primary component will be retained for subsequent examination.

Table 8
Results of Total Variance Explained for Personal Factors

	Initial Eigenvalues		Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Com	Total	% of Var	Cum %	Total	% of Var	Cum %	Total	% of Var	Cum %
1	4.537	64.819	64.819	4.537	64.819	64.819	4.537	64.819	64.819
2	0.603	8.617	73.436				0.603	8.617	73.436
3	0.548	7.831	81.267				0.548	7.831	81.267
4	0.444	6.345	87.613				0.444	6.345	87.613
5	0.345	4.926	92.539				0.345	4.926	92.539
6	0.275	3.929	96.468				0.275	3.929	96.468
7	0.247	3.532	100.000				0.247	3.532	100.000

**Note: Com=Component, Var=Variance, Cum=Cumulative*

Reliability of all Constructs

Reliability in measurement scales signifies their consistency level, crucial for evaluating their internal coherence. Internal consistency examines how uniformly scale items measure the intended construct within a reliability test (Tavakol & Dennick, 2011). The primary measure for assessing this aspect is Cronbach's Coefficient Alpha, which quantifies a scale's internal coherence on a scale from 0 to 1, with values closer to 1 reflecting higher reliability (Tang et al., 2014; Cronbach, 1951). Generally, a Cronbach alpha value of 0.70 is deemed acceptable for indicating reliability Abdul-Rashid et al (2017); Tavakol & Dennick (2011), a view supported by Drost (2011) who recommends that values ideally meet or exceed this threshold.

In this study, the instrument's reliability was assessed using Cronbach's alpha. According to the established Rule of Thumb, the alpha values achieved the recommended reliability benchmark of 0.7 (Abdul-Rashid et al., 2017). The results indicated robust reliability across all scale items, with Cronbach's Alpha values consistently exceeding 0.70. Table 3.9 presents the pilot findings, detailing the internal consistency reliability for the constructs of Adoption, Purpose, and Educational Usage.

Table 9
Pilot Results of Internal Consistency Reliability

Measurement	No. of Items	Cronbach's Alpha	Item for Deletion
Adoption：	15	0.898	None
PU	5	0.894	None
PEOU	5	0.838	None
SI	5	0.866	None
Purpose：	14	0.921	None
SO	5	0.902	None
EN	4	0.873	None
IN	5	0.880	None
Educational Usage：	7	0.908	None
EU	7	0.908	None

Exploratory Factor Analysis and reliability assessments in this study resulted in the removal of one item, leading to the retention of 36 out of the original 37 items. Table 3.10 lists the items that were ultimately retained and recoded for inclusion in final questionnaire.

Table 10
Summary of Final questionnaire

Construct	Domain	Coding	Items
Adoption	Perceived Usefulness	PU1	I find that using TikTok enhances my interactions with others.
		PU2	I feel that TikTok provides me with valuable information and content.
		PU3	I feel that TikTok provides me with a platform to share useful information with others.
		PU4	I find that there are educational videos on TikTok that help me with my studies.
		PU5	In general, Using TikTok is useful for me.
	Perceived Ease of Use	PEOU1	I find TikTok's interface to be very intuitive and user-friendly.
		PEOU2	I find it easy to learn and use the features of TikTok.
		PEOU3	I find it easy to do what I want to do with TikTok.
		PEOU4	I can use TikTok for learning easily.
		PEOU5	In general, I find it easy to use TikTok.
	Social Influence	SI1	I use TikTok because my friends recommend that I do.
		SI2	I pay more attention to the TikTok features used by my friends/contacts.
		SI3	I use TikTok because a lot of people I know want me to use it too.
		SI4	I use TikTok more because of the influence of people around me.
		SI5	I use TikTok to fit in with the group.

Purpose	Socialization	SO1	I use TikTok to stay engaged and connected with my friends.
		SO2	I use TikTok to reach out and meet people I'm interested in and to expand my social circle.
		SO3	I use TikTok to discuss hot topics with my friends.
		SO4	I use TikTok to interact with others.
		SO5	I use TikTok in order to find like-minded people and get emotional support.
	Entertainment	EN1	I use TikTok to relax and relieve stress/anxiety/tension.
		EN2	I use TikTok to keep myself entertained.
		EN3	I use TikTok to help me kill my boredom.
		EN4	I use TikTok to find interesting videos.
	Informativeness	IN1	I use TikTok because it's a giant source of information.
		IN2	I use TikTok in order to keep up with the latest news, trends or hot topics.
		IN3	I use TikTok to learn niche information.
		IN4	I use TikTok to find the information I need.
		IN5	I use TikTok in order to access resources related to my studies.
Educational Usage		EU1	I use TikTok to watch education-related content.
		EU2	I use TikTok to actively search for and learn knowledge or skills in subjects that interest me.
		EU3	I use TikTok to help me with my study tasks.
		EU4	I used what I learned from TikTok to solve my academic problems.
		EU5	I take the initiative to communicate with my classmates to share the knowledge and experience related to learning gained on TikTok.
		EU6	I use TikTok to create content about education.
		EU7	I recommend other students to use TikTok for learning as well.

Discussion and Conclusion

The questionnaire developed in this study aims to improve the measurement of university students' educational use of TikTok in today's rapidly changing environment. China has seen significant and rapid advancements in information and communication technology, with university students extensively using online resources. This study was designed to develop and validate a questionnaire to gauge undergraduate students' adoption and purposes for educational usage of TikTok. Drawing on an extensive literature review, this research measured TikTok's use across various educational settings. This paper outlines rigorous

methodological procedures for developing and quantitatively validating a method to measure the educational use of TikTok among Chinese undergraduates. The scale is well-supported both statistically and theoretically. Factors extracted through exploratory factor analysis also offer empirical relevance, providing a robust framework for understanding the educational implications of TikTok usage among students.

In this study, the three main variables—adoption, purpose, and educational usage—were adapted from the structural model developed by Mazman & Usluel (2010) for Facebook's educational usage. This model was subsequently tested and reaffirmed by Sánchez et al. (2014); Manasijevic et al (2016), validating its effectiveness. Reflecting TikTok's unique features, the reflective variables for adoption were identified as perceived usefulness, perceived ease of use, and social influence. For TikTok's usage purposes, the variables were defined as socialization, entertainment, and informativeness. Ultimately, this approach led to the development of a questionnaire that possesses both high reliability and validity.

This study provides scholars with essential tools and new empirical insights for researching TikTok usage. As highlighted earlier, TikTok predominantly attracts younger users, including teenagers, who produce content that is not only fun and visually appealing but also creatively engaging. This platform offers an opportunity for developing educational content that is both intellectually stimulating and entertaining (Hayes et al., 2020). Building on the success of entertainment-focused platforms for short video sharing, TikTok has become a significant channel for disseminating knowledge across various fields such as science, technology, and culture (Draganić et al., 2021). Short-form videos have become a popular medium for learning and sharing expertise in creative disciplines like culinary arts, visual arts, and handicrafts. These videos leverage their visual appeal and interactive features to transform the learning experience, enhancing socialization among users with similar interests (Draganić et al., 2021). Surveys indicate that young people, especially those born after 1990 and 2000, are highly engaged in proactive learning through platforms like TikTok, integrating it into their lifestyles. The primary motivator for this engagement is "interest," focusing on learning that enriches personal and social enjoyment rather than meeting academic or professional requirements (PeopleData, 2022).

The practical implications of the study results underscore the significant role that academic support for using TikTok plays in enhancing students' awareness of knowledge sharing, thereby improving their learning outcomes. To achieve this objective, it is suggested that educational institutions organize workshops or targeted courses to foster a proactive and effective approach to TikTok among students and teachers. Additionally, this research provides educational administrators and government officials with empirical evidence and guidance to better understand the needs of their social media users, thereby enabling them to develop effective frameworks or policies.

Limitations

Despite employing highly reliable and valid procedures for scale development, our study has some limitations. One significant constraint is that exploratory factor analysis, including scale refinement techniques, requires a considerable sample size. While this study is well-supported by appropriate literature and rationale for using these techniques, a larger sample would yield more robust results. Additionally, this study specifically focuses on TikTok, whose unique product positioning, functions, and features may limit the generalizability of the findings to other social media platforms. Moreover, in the rapidly evolving online information

age, TikTok is still maturing and may experience further modifications due to social or market factors, which could introduce errors or uncertainties into our findings.

Given TikTok's widespread popularity in China, further research could explore whether the questionnaire effectively assesses how adoption and purpose influence educational usage. This could provide insights into the factors influencing undergraduates' use of TikTok for educational purposes and validate the research model's efficacy. Additionally, educators could utilize this scale to better understand university students' educational use of TikTok, thereby maximizing its benefits. Overall, the data from these studies could inform a more coordinated approach between students and teachers for integrating TikTok as a solution for academic needs. Further qualitative research based on this questionnaire could also reveal usage patterns related to these dynamics, offering deeper insights into user behaviors.

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