Descriptive Study On Cloud Note User's Migration: Based On Extended Expectation Confirmation Theory

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Abstract:

Cloud Note is the future of Personal knowledge management, and only the continuous use of users can truly realize its value. However, existing research has given too much attention to the new technologies of Cloud Note, and empirical research on existing users is almost blank. Based on the Expectation conformation model of IS continuance(ECM-ISC), this study explores the influencing factors of individual users' continuance intention on Cloud Note. In particular, this study expanded ECM-ISC and increased brand intimacy to explore the impact of continuance intention on brand intimacy. This study collected effective opinions from 400 individual users of Cloud Note through a survey questionnaire and conducted data analysis using SPSS 24.0 and AMOS20.0. In this study, individual users' expectation confirmation, satisfaction, and perceived usefulness of the Cloud Note system were tested as antecedents of continuance intention, and the relationship between continuance intention and brand intimacy was analyzed. The research results show that the expectation confirmation of individual users of Cloud Note has a positive impact on perceived usefulness and satisfaction. Perceived usefulness and satisfaction have a significant positive impact on continuance intention, and continuance intention also significantly affects brand intimacy. At the same time, perceived usefulness and satisfaction partially mediate the relationship between expectation confirmation and continuance intention. Overall, the results of this study strongly support the research model, which explains 69.476% of continuance intention, with all hypotheses being significant.

Keywords: Cloud Note; Expectation conformation model of IS continuance（ECM-ISC）; Continuance intention; Brand intimacy.

1. Introduction

The amount of data generated globally will increase from 33 ZB in 2018 to 175 ZB in 2025 (IDC, 2018).We are in the era of the information explosion . Due to the difficulty in judging information quality and the change[1]s in the way and speed of obtaining information, how

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to quickly and effectively find useful information and transform it into knowledge has become a challenge (Hu, 2016). The solution of these problems depends on personal knowledge management, which is one of the basic skills for individuals to survive and develop in the society (Liu & Ning, 2022). In this era of information explosion, Personal knowledge management tools must be used to achieve Personal knowledge management (Zi, 2013). Cloud Note is a kind of online note tool that has emerged in recent years. It focuses on the management of personal knowledge in the network environment, and has almost all the functions of Personal knowledge management tools (Bao, 2014). Cloud Note facilitates users to record every bit of their life or work in the form of text, sound, video, photos, and other forms anytime and anywhere, as well as quickly save the required content when browsing the web page, meeting the management of communication records, agenda items, scattered data, and so on. They generally support multi-platform clients for PCs and mobile devices, while achieving mobile phones, computers Information synchronization between tablet clients and cloud servers(Cai & Zhan, 2018).

Cloud Note entered the Chinese market in 2012 as an important tool for personal knowledge management. Subsequently, Cloud Note software for individual users in China continued to emerge. China's Cloud Note market has great development potential(Tang, 2019)，But in just a decade， two Cloud Note software have ceased operations, one Cloud Note software has been acquired, and new Cloud Note software is still being launched. As of December 2022, there are 12 major personal Cloud Note software in the Chinese market. At the same time, compared to developed countries, the development of Chinese Cloud Note enterprises are tepid. There are two main reasons for this: first, Chinese App users have low awareness of payment and difficulty in commercialization. Second, the mobile Internet market slowed down, and the number of individual users of Cloud Note entered the stock market. (Liu, 2022).In order to regain growth rate and open up the growth space of China's Cloud Note individual user market, Cloud Note service providers can only continuously tap into the value of existing users at this stage. The longer a user uses a Cloud Note system, the deeper their affection for the system (Tang, 2019). At the same time, the data shows that the proportion of paid users of the Cloud Note software Evernote has remained between 4% and 6% for a long time. For users who use it for one month, the paid conversion ratio is less than 1%. For users who use it for one year, the conversion ratio is 11%. For users who use it for four years, the conversion ratio reaches 25%; among the daily active users of Youdao Cloud Note, only about 10% are paid users, but the renewal rate of paid users is as high as 80%. Understanding existing user needs and establishing intimate relationships are the foundation for the future profitable growth of Cloud Note service providers (Chen, 2021). However, few scholars pay attention to the feelings of individual users of Cloud Note (Coursaris et al., 2013; Gatwood et al., 2021), and research on the continuance intention of Cloud Note users is even more blank. Meanwhile, research on the relationship between willingness to use and brand intimacy is also extremely limited (Cheng et al., 2022; Navaneethakrishnan & Sathish, 2020). Therefore, taking "Continuance intention and Brand Intimacy of Individual Users of Cloud Note" as the research topic in this article is undoubtedly a major challenge.

2. Literature review

2.1 Theoretical foundation

Due to the lack of research on the continuance intention and brand intimacy of Cloud Note users. Therefore, this study draws on research on other types of cloud services to sort out the main theory in the field of cloud service continuance intention—The Extended Model of Expectation confirmation theory（Expectation conformation model of IS continuance .ECM-ISC），take it as the basic theory of this study. Drawing on the viewpoint of Cheng et al. (2022), brand intimacy is incorporated into ECM-ISC as a subsequent variable of continuance intention to construct this research model.

Expectation conformation model of IS continuance (ECM-ISC)

The Expectation Confirmation Model, also known as the expectation conformation model of IS continuance(ECM-ISC).It is developed by Bhattacherjee (2001) based on the expectation disconfirmation theory (EDT) proposed by Oliver (1980) , which is used to explain the factors affecting the continuance intention of information technology and has been widely used in the field of information systems (Cheng, 2022; Hung et al., 2020; Khan & Saleh, 2022; Zhao & Khan, 2021).Veeramootoo et al. (2018) also confirmed that ECM is superior to other technology adoption models because it includes satisfaction and confirmation that are important for the post adoption response of the study.

In the field of IS use behavior research, the most typical representative of the post adoption stage is the continuous use of information systems. Bhattacherjee (2001) combined with the practical application of information system technology, proposed ECM-ISC which includes expectation confirmation, perceived usefulness, and satisfaction and continuance intention. Perceived usefulness refers to the degree to which users believe that using a specific system will improve their work performance (Davis et al., 1989). Confirmation refers to the perceived degree of consistency between users' expectations of IS usage and their actual performance. Satisfaction is whether the user is satisfied with the use of an information system and the degree of satisfaction. Continuance intention refers to the user is satisfied with the use of the information system and is willing to continue to use it in the future (Bhattacherjee, 2001). The above variables not only have an impact on the user's continuance intention, but also have mutual influence. Specifically, the expectation confirmation of information system users will directly affect their satisfaction with the information system, thereby affecting their continuance intention. At the same time, the degree of expected confirmation also affects the user's expectation after use, that is, the perceived usefulness. Perceived usefulness has a direct positive impact on continuance intention, and can also mediate the relationship between expectation confirmation and continuance intention (Bhattacherjee, 2001).

Brand Intimacy

The emotional science of measuring the connection between users and the brands they use, and love is called brand intimacy. Brand intimacy is a new marketing paradigm proposed by Natarelli and Plapler (2017) in "Brand Intimacy", which creates a higher form of loyalty - loyalty based on emotional connections, which is an emerging theory. When users have emotional connections with a certain brand, they are more likely to purchase more products

and services from that brand, have lower price sensitivity, and are more willing to recommend and share the brand. If ignored, it may disrupt a company's growth, as companies must establish intimate relationships between brands and users in order to succeed in the newly defined market (Natarelli & Plapler, 2017). Usage intention plays a crucial role in creating brand intimacy, but the research on this aspect is very limited (Cheng et al., 2022; Navaneethakrishnan & Sathish, 2020).

2.2. Hypotheses development and research model

2.2.1 Hypotheses development

Direct effect

Expectation confirmation is the evaluation of user expectations after actual use. ECM-ISC hypothesis confirmation is positively correlated with perceived usefulness and user satisfaction (Bhattacherjee, 2001).Cheng also found in a series of studies on continuance intention in the field of cloud services that expectation confirmation affects users' perceived usefulness and satisfaction (Cheng, 2018, 2019a, 2019b, 2020a, 2020b, 2021a, 2021b, 2021c).Hung et al. (2020) found that teachers' expectation of cloud bookstore positively affects perceived usefulness and satisfaction. This study posits that the user's expectation confirmation of the Cloud Note system will affect their perceived usefulness and satisfaction with the system. If users' expectations are confirmed after actual use of the Cloud Note system, they will feel satisfied and also perceive that the Cloud Note system is useful. Therefore, this study proposes the following hypothesis:

H1: Expectation confirmation will positively affect users' perceived usefulness of Cloud Note system.

H2: Expectation confirmation will positively affect user satisfaction with Cloud Note system.

Davis et al. (1989) introduced perceived usefulness as an important variable into the study of information system usage. Gefen (2003) empirical study found that perceived usefulness has a significant positive impact on the continuance intention of information system users. Cheng (2021c) also confirmed in his study on the continuance intention of cloud consulting services that perceived usefulness has a positive impact on users' continuance intention. This study posits that if users believe that using Cloud Note system is helpful for their work, study, or life, they are more willing to continue using the Cloud Note system. Therefore, this study proposes the following hypothesis:

H3: Perceived usefulness will positively affect users' continuance intention to use Cloud Note system.

Bhattacherjee (2001) pointed out that satisfaction plays an important role when users decide whether to continue using an information system. Li and Fang (2019) found in their study on Branded apps' continuance intention that satisfaction has a positive impact on continuance intention. Ashfaq et al. (2020) showed that satisfaction is a strong determinant

and predictor of users' continuance intention of chat-bots e-serves. Cheng (2020b, 2021b) also found in his study of continuance intention in cloud-based e-learning system that satisfaction is a positive predictor of continuance intention. When users are satisfied with cloud services, they will plan to continue using such services. This study posits that if users are satisfied with the Cloud Note system, they will be willing to continue using it. Therefore, this study proposes the following hypothesis:

H4: Satisfaction will positively affect users' continuance intention to use Cloud Note system.

Brand intimacy is multi-dimensional and involves not only emotions, but also the strength of the relationship, intention of use and its duration (Huber et al., 2015). Brand intimacy is a component of the emotional relationship between users and the company, and intimate relationships can grow over time (Wang & Lee, 2020). Willingness to use plays a crucial role in creating brand intimacy(Navaneethakrishnan & Sathish, 2020). The more positive the user's willingness to use the application they are using, the higher their brand intimacy with the application (Cheng et al., 2022). This study posits that if users have a more positive continuance intention towards Cloud Note system, their brand intimacy with the system will be higher. Therefore, this study proposes the following hypothesis:

H5: Continuance intention will positively affect users' brand intimacy towards Cloud Note system.

The mediating role of satisfaction and perceived usefulness

Bhattacherjee (2001) applied the ECM-ISC model to an empirical study of users' continuous behavior of e-banking and found that expectation confirmation positively affects the continuance intention of information systems through satisfaction and perceived usefulness. Cheng (2022) also confirmed in his study of e-learning system that perceived usefulness and satisfaction play a mediating role between expected confirmation and continuance intention. Therefore, this study proposes the following hypotheses using perceived usefulness and user satisfaction as mediating variables:

H6: perceived usefulness mediates the relationship between confirmation and continuance intention.

H7: satisfaction mediates the relationship between confirmation and continuance intention.

2.2.2 Research model

The research model of this study is based on ECM-ISM, with perceived usefulness, expected confirmation, and satisfaction as antecedents, directly or indirectly leading to users' continuance intention to Cloud Note system and its impact on brand intimacy. The research model is shown in Figure 1.
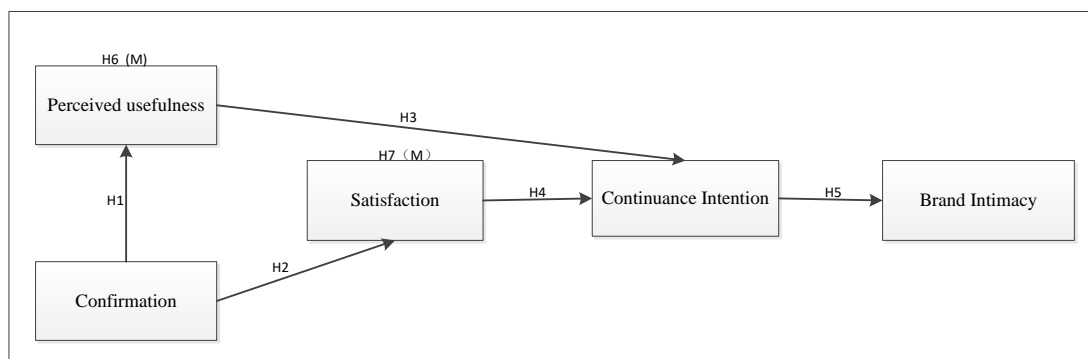
Figure 1 Research Model

3. Methodology

3.1 Measures and pre-test

This study used a cross-sectional questionnaire survey method to measure all variables using a 7-point Likert scale, ranging from 1 (="strongly disagree") to 7 (="strongly agree"). The initial scale of this study draws on mature items that have been used in literature, and combines with scenario adjustment and revision of Cloud Note. In previous studies, they have shown strong reliability and validity. To ensure the validity of the content, the initial scale was presented to five experts in the field of management (or economics) with doctoral degrees, and a structured survey questionnaire was completed based on their feedback (Table 1). In addition, the survey questionnaire recruited 58 individual users of Cloud Note from colleagues, classmates, and students through a combination of judgment sampling and snowball sampling, and pre-tested them. A total of 47 valid questionnaires were obtained by excluding invalid questionnaires with the same option selected throughout the entire questionnaire and a response time less than 1 minute displayed on the internet. The instrument's reliability was evaluated using Cronbach's a coefficients that indicate internal consistency of the items used for calculating scales and the Cronbach's a values (ranging from 0.730 to 0.900) exceeded common requirements for exploratory research, indicating a satisfactory reliability level(Hair et al., 1998).At the same time, this study also excluded participants in the pre-test from the final data collection and subsequent research.

Table 1 Revised measurement scale

Variable	Code	Items	Source
Confirmation （EXP）	EXP1	The experience of using the Cloud Note system exceeded my expectations.	Bhattacherjee (2001)
	EXP 2	The overall functionality or service level provided by the Cloud Note system is better than what I expected.	
	EXP 3	Overall, most of my expectations for Cloud Note systems have been met.	
Perceived usefulness	PU1	Using Cloud Note can improve my efficiency in work, study and life.	Ming (2013)

（PU）	PU2	The Cloud Note system can help me easily and quickly find the information I have collected and organized.	
	PU3	Using the Cloud Note system allows me to collect and organize information more quickly.	
	PU4	I think using Cloud Note is useful for my work, study, and life.	
Satisfaction （SAC）	SAC1	I am satisfied with the performance of the Cloud Note system.	Cheng (2022)；Yu (2020)
	SAC2	I am satisfied with the user experience of the Cloud Note system.	
	SAC3	I am satisfied with the functionality of the Cloud Note system.	
	SAC4	I am satisfied with the overall experience of the Cloud Note system.	
	SAC5	I think using this Note system is a wise decision.	
Continuance intention （CON）	CON1	I am willing to continue using Cloud Note system in the future.	Gui (2016); Cheng (2019b)
	CON2	I will continue to use Cloud Note system in the future.	
	CON3	I will often use Cloud Note system in the future.	
	CON4	I intend to continue using the Cloud Note system instead of other alternative tools.	
	CON5	I am willing to use more functions of Cloud Note system.	
	CON6	I would like to recommend my friend to use Cloud Note system.	
Brand intimacy (BRA)	BRA1	I feel a warm feeling as soon as I see this Cloud Note	Cheng et al. (2022)
	BRA2	I have a dependency on this Cloud Note.	
	BRA3	I feel emotionally close to this Cloud Note.	

3.2 Sample, data collection and ethical considerations

The target population parameter of this study is the individual Cloud Note users living in Chinese Mainland. In order to identify respondents with the above parameters, the sampling framework of this study was taken from the world's largest Chinese online communication platform - "Baidu Tieba". Considering user activity and timely updates, six Tieba related to cloud note were ultimately determined as the sampling units for this study through manual inspection one by one. "Baidu Tieba" is mainly aimed at Chinese users. Six Tieba related to Cloud Note basically cover several Cloud Note software with more users in the Chinese market, and the total number of users exceeds 40000. And these users have used at least

one Cloud Note software, which is very consistent with the requirements of this study on target population parameters. This study used the professional online survey website WJX in China （ http://www.wjx.cn/ ） Generate survey links and publish it to six target Tieba. Firstly, seek help from the 'Tieba Manager' who acts as gatekeepers and distributes survey links to team members. Secondly, the author will post survey links in six Tieba and invite Tieba members to participate in the survey. To minimize data changes, data collection is completed within a month. A total of 459 questionnaires were distributed in this survey, and 59 invalid questionnaires with the same option selected and the online display of answer time less than 1 minute were excluded. 400 valid questionnaires were collected (87.0%). In terms of scientific research ethics, this study follows the ethical principles of Bouma and Ling (2000) for investigation. Before the survey, participants were informed that their participation and responses would be completely anonymous, confidential, and voluntary, and they had the right to withdraw at any time during the survey. Please ask them to objectively reflect their true opinions on each question as much as possible, and there is no right or wrong answer to each question. At the same time, inform participants that the data from this survey is only for academic research and that returning the completed questionnaire means agreeing to participate in this study.

3.3 Data analysis

The data analysis of this research adopts the Structural Equation Modeling (SEM) method. First, confirmatory factor analysis (CFA) was used to develop the measurement model. Next, to explore the causal relationships among all constructs, the structural model for the research model was tested by using SEM.

4. Results

4.1 Demographic Information

A total of 400 valid questionnaires were collected in this survey. Among them, 197 respondents (49.3%) were female, and 203 respondents (50.7%) were male, with a balanced number of male and female users. The 18-30 age group has the highest number of respondents (52.8%, n=211), followed by the 31-40 age group (43%, n=172), with users generally under the age of 40. The majority of respondents (99.25%, n=397) have a college degree or above, and Cloud Note users generally have higher education levels. From the personal characteristics of the respondents, it can be seen that people with higher education and younger age are more willing to accept Cloud Note and put it into use. In terms of user experience, only 3.0% of users have been using Cloud Note for less than or equal to one year, while the majority of users have more than one year of Cloud Note usage experience (97%), which means that most participants have a rich Cloud Note experience. In terms of the regions where the sample users are located, 259 users (64.8%) are located in the eastern coastal region, 80 users (20%) are located in the central inland region, and 61 users (15.3%) are located in the western remote region. The sample size of the user's region is also in line with the economic development situation of the region.

4.2 Test of normality

This study collected 400 valid questionnaires, with a sample size higher than the minimum sample size required for SEM analysis of 200(Kline et al., 2011). In this study, the absolute values of skewness and kurtosis for all items ranged from 0.010 to 0.600 and 0.052 to 1.205, respectively, meeting the requirement proposed by Kline et al. (2011) that the absolute values of skewness and kurtosis for all items should be less than 3 and 10. Therefore, the survey data in this study conform to Normal distribution.

4.3 Results of structural modeling analysis

Measurement model. In order to evaluate the measurement model, reliability, convergent validity, and discriminative validity were analyzed in this study.

First, evaluate reliability. This research applied Cronbach's alpha and composite reliability to test reliability. The results indicate that the Cronbach's alpha coefficients of all dimensions exceed the 0.7 critical value recommended by Hair et al. (1998), indicating that their reliability is sufficient. Meanwhile, their composite reliability (CR) are all higher than the recommended standard of 0.7. Overall, the reliability of all dimensions has been confirmed (Table 2).

Second, evaluate convergence validity. This study is based on the viewpoint of Hair et al. (1998)，squared multiple correlations (SMC) for each item and composite reliability (CR) and average variance extracted (AVE) for each dimension were used in this research to test the convergent validity. At the same time, the following fit indices are used to measure the convergence validity of the scale, Goodness of Fit Index (GFI)、Adjusted Goodness of Fit Index（AGFI）、Comparative Fit Index（CFI）、Chi-Square/df(x^2/df)、Root Mean Square Error of Approximation (RMSEA). The measurement standards for these fit indices are: x^2/df＜5、CFI＞0.9、GFI＞0.9、AGFI＞0.9、RMSEA＜0.10(Hair et al., 1998; MacCallum et al., 1996; Marsh & Hocevar, 1985). The CFA results show that the factor loading and SMC values of all items are greater than 0.6 and 0.36 respectively (Bagozzi, 1981)，It indicates that the item can reflect the dimension information well. The CR and AVE values of all dimensions exceed the minimum acceptable values of 0.7 and 0.5 (Hair et al., 1998)，

All dimensions of the scale have good intrinsic quality. The fit indices of the four measurement models, namely Perceived Usefulness (PU), Expectation Confirmation (EXC), Satisfaction (SAC), and Brand Intimacy (BRA), all meet the standards and are well fitted, indicating that the scales of these four measurement models have good convergent validity. However, the partial fit indices of the Continuance Intention (CON) measurement model, AGFI=0.777<0.9, x^2/df =14.946>5, and RMSEA=0.187>0.1, do not meet the threshold level recommended by scholars. Therefore, this study modified the measurement model of CON by deleting the measurement item CON6 based on the modified indicators. After the modified, the x^2/df =3.202, GFI=0.984, AGFI=0.953, CFI=0.991, and RMSEA=0.074, and the values of all fit indices met the standards. Overall, the fit indices of each measurement model is good and has good convergence validity (Table 2).

Table 2 Results of CFA, validity analysis and reliability test

Construct	Item	Estimate	t-value	Factor loading	Item reliability	composite reliability	convergent validity	Cronbach's a	fit indices
				std	SMC	CR	AVE		
EXC	EXC1	1.000		.794	.630	.796	.566	.795	/
	EXC2	.929	12.190	.761	.579				
	EXC3	.802	11.900	.699	.489				
PU	PU1	1.000		.776	.602	.868	.621	.867	x^2/df =3.018
	PU2	1.033	16.150	.816	.666				GFI = .996
	PU3	.973	15.003	.758	.575				AGFI =.982
	PU4	1.037	15.884	.801	.642				CFI = .999 RMSEA =.036
SAC	SAC1	1.000		.698	.487	.838	.509	.838	x^2/df =3.306
	SAC2	1.010	12.070	.698	.487				GFI = .997
	SAC3	1.065	12.595	.735	.540				AGFI =.990
	SAC4	.996	12.254	.711	.506				CFI =1.000
	SAC5	1.032	12.433	.724	.524				RMSEA =.000
CON	CON1	1.000		.768	.590	.891	.626	.888	x^2/df =3.202
	CON2	1.175	20.067	.930	.865				GFI =

Construct	Item	Estimate	t-value	Factor loading	Item reliability	composite reliability	convergent validity	Cronbach's a	fit indices
				std	SMC	CR	AVE		
	CON3	1.168	19.137	.884	.781				0.984 AGFI = .953 CFI = .991 RMSEA =.074
	CON4	.574	12.958	.634	.402				
	CON5	.656	14.506	.700	.490				
BRA	BRA1	1.000		.849	.721	.848	.650	0.847	/
	BRA2	.841	15.332	.765	.585				
	BRA3	.958	15.790	.803	.645				

Third, evaluate discriminant validity. According to the suggested standards of Fornell and Larcker (1981)，the square root of each construct's AVE should be higher than their inter-correlations. The results of confirmatory factor analysis show that the square root of AVE for perceived usefulness, satisfaction, continuance intention, confirmation, and brand intimacy is higher or closer to their correlation, it indicates that the measurement model of this study has good discriminant validity (Table 3).

Table 3 Discriminant validity for the measurement model

Construct	AVE	EXC	BRA	CON	SAC	PU
EXC	.566	**.752**				
BRA	.650	.171	**.806**			
CON	.626	.480	.514	**.791**		
SAC	.509	.769	.229	.579	**.713**	
PU	.621	.582	.197	.452	.238	**.788**

Note: The boldface values along the diagonal line are the AVE values for the constructs and the other values are the squared correlations for each pair of constructs.

4.4 Common method bias

When respondents fill out the same questionnaire in the same measurement environment, it is easy to generate common method bias, so it is necessary to test it. Harman's single-factor test is a commonly used testing method (Podsakoff et al., 2003).This study used

Harman's single-factor test method to conduct non-rotating exploratory factor analysis on the questionnaire measurement scale. Four factors with eigenvalues greater than 1 were identified, which collectively explained 69.476% of the total variance, with the variance explanatory power of the first factor being 35.738%, which is less than 50% (Podsakoff et al., 2003). This indicates that there is no single factor in the data that can explain the vast majority of variance. Therefore, there is no serious issue of common method bias in this study.

Structural model. The next step is to evaluate the overall fit between the structural model and the data. The overall fit indices of the structural model in this study (Figure1) is as follows:x^2/df=1.265，GFI=0.950，AGFI=0.937，CFI=0.989，RMSEA=0.026（Figure 2）. Based on the rules of previous studies (Bagozzi & Yi, 1988; Hair et al., 1998)，the results of CFA showed that these indicators exceeded their respective acceptable levels, indicating that the structural model of this study had a good overall fit with the data.

4.5 Hypotheses testing

The path analysis results of the structural model are shown in Table 4. Table 4 lists all standardized path coefficients, t-value, and significance. The path relationship of each variable is displayed. As to the hypotheses, confirmation had positive effects on Perceived usefulness and satisfaction, Perceived usefulness had positive effects on continuance intention, and satisfaction positively affected continuance intention, continuance intention had positive effects on brand intimacy. All of the hypothesized relationships in this research model were validated at a p < 0.001 significance level.

Table 4 the results of hypothesis testing

Hypothesis	Standardized path coefficient	S.E.	t-value	Significance(P)	Support
H1:EXC-->PU	.532	.077	8.576	***	Yes
H2:EXC->SAC	.729	.072	10.549	***	Yes
H3:SAC->CON	.474	.051	8.145	***	Yes
H4:PU->CON	.306	.039	5.82	***	Yes
H5:CON->BRA	.513	.084	9.037	***	Yes

Note：***p<0.001

According to the path analysis diagram of the structural equation model (Figure2), Expectation confirmation explains 28% of perceived usefulness and 53% of satisfaction. The combination of two variables, perceived usefulness, and satisfaction explained 43% of continuance intention. The continuance intention explains 26% of the brand intimacy. These data indicate that the overall explanatory power of this research model is good.
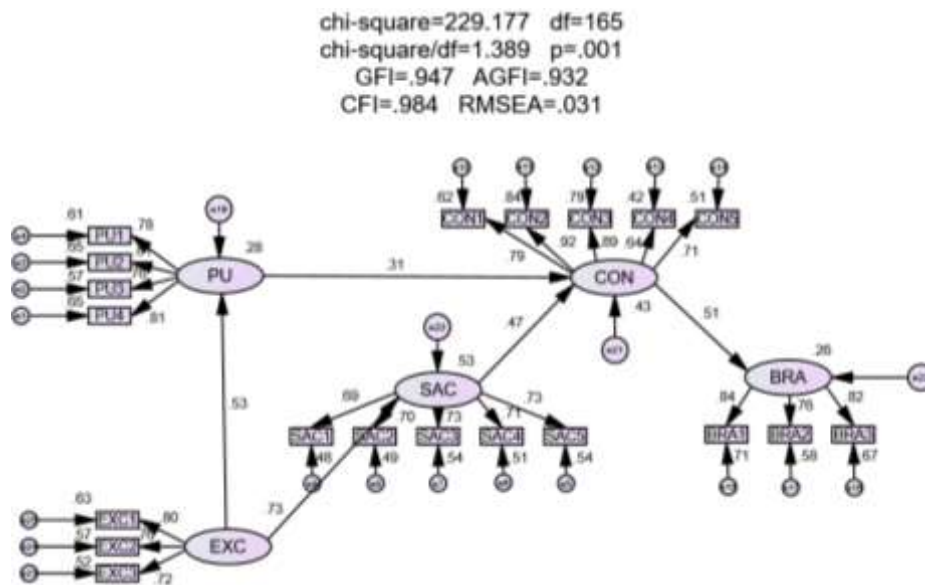
Figure 2 Structural Equation Model Path Analysis

On the basis of direct effects, this study used SPSS24.0 to analyze the mediating effect of this study according to the Bias-corrected nonparametric percentile Bootstrap method recommended by Zhonglin and Baojuan (2014) (the number of sampling is set to 5000), and the results are shown in Table 5 and Table 6. The Confidence interval of the direct effect of expectation confirmation on the continuance intention and the mediating effect do not contain 0, indicating that the mediating effect is significant and partially mediated. The confidence interval of the mediating path of perceived usefulness is (0.059, 0.143), excluding 0. The mediating effect is significant, the size of the mediating effect is 0.099, and H6 is supported. The confidence interval of the mediating path of satisfaction is (0.134, 0.237), excluding 0. The mediating effect is significant, the size of the mediating effect is 0.181, and H7 is supported.

Table 5 Direct effects of each variable

DV	IV	coeff	se	t	p	LLCI	ULCI
PU	constant	1.902	.228	8.343	.000	1.454	2.350
	EXC	.516	.046	11.106	.000	.425	.607
CON	constant	3.310	.162	20.462	.000	2.992	3.628
	PU	.193	.033	5.873	.000	.128	.257
	EXC	.196	.035	5.620	.000	.127	.264

Table 6 Indirect effects of each variable

	Effect	BootSE	t	p	BootLLCI	BootULCI
EXC->PU->CON	.099	.022	4.500	.000	.059	.143
EXC->SAC->CON	.181	.026	6.962	.000	.134	.237

5. Discussions. Implications and Conclusions

The empirical results of this study support the multi-path hypothesis that Cloud Note users' continuance intention and brand intimacy are formed. Firstly, referring to ECM-ISC, the results of this study support that expectation confirmation is a positive predictor of perceived usefulness and satisfaction, while perceived usefulness and satisfaction are important factors in the continuance intention. The results of this study show that the higher the degree of expected confirmation of the Cloud Note system, they will find the system more useful and satisfied with it. At the same time, if users perceive that Cloud Note system can improve their work performance, i.e. perceived usefulness, they will demonstrate a higher continuance intention. And user satisfaction of Cloud Note system is a stronger predictor of continuance intention than perceived usefulness. The results of this study confirm the viewpoint of Bhattacherjee (2001) and are similar to the findings of Ashfaq et al. (2020),Cheng (2021c) and Hung et al. (2020), namely, expectation confirmation positively affects perceived usefulness and satisfaction, Continuance intention is influenced by perceived usefulness and satisfaction. Only when users feel that the system is useful and satisfied with it will they be willing to continue using it. Secondly, this study integrates brand intimacy into ECM-ISC to investigate the relationship between continuance intention and brand intimacy. The research results show that brand intimacy positively affects users' continuance intention of Cloud Note system. The stronger the continuance intention of Cloud Note system, the higher their brand intimacy with the system will be. The results of this study are similar to the findings of Cheng et al. (2022), and further support this viewpoint through empirical testing of information systems such as Cloud Note. Finally, in addition to studying the direct relationship between the main variables, this article further investigates the mediating effects of perceived usefulness and satisfaction as expected confirmation and continuance intention. The results show that the Mediating effect of perceived usefulness and satisfaction exists and is partially mediated. The results of the mediation effect analysis of this study further confirmed the importance of perceived usefulness and satisfaction to improve the continuance intention of Cloud Note, echoing again the view of Bhattacherjee (2001) that perceived usefulness and satisfaction are important evaluation indicators of continuance intention, and the same is true for Cloud Note system. Based on ECM-ISC, this research constructs a model of influencing factors of continuance intention of individual Cloud Note users, and the model has good explanatory power.

From a theoretical perspective. Firstly, this study applies ECM-ISC to Cloud Note for the first time, expanding the application scope of this theory and filling the gap in the field of Cloud Note research, providing important theoretical and empirical basis for subsequent related research. Secondly, it is also the biggest theoretical contribution of this study. For the first time, brand intimacy was added as a follow-up variable of continuance intention to ECM-ISC, further expanding the research scope of continuance intention in Cloud Note context and providing reference for research in the field of continuance intention.

From a practical perspective. Personal Cloud Note system has been in operation in China

for over a decade, and now many competitor platforms are available for users to use. Although the development potential of the Chinese market is great, the development of Chinese Cloud Note enterprises is tepid, facing difficulties in commercialization and the industry dilemma of users entering the existing market. How to retain users, enhance their brand intimacy, and improve brand competitiveness is a huge problem for Chinese Cloud Note service enterprises (Liu, 2022). This study provides ideas for Cloud Note companies to solve the problem, and also puts forward requirements for marketers. The research results indicate that Cloud Note enterprises should conduct user behavior analysis before formulating any strategy, regularly and in detail understand users' expectations of Cloud Note system (functionality, performance, security, services, etc.), enhance expectation confirmation, improve users' perceived usefulness and satisfaction, enhance continuance intention, increase user payment conversion ratio, form brand intimacy, and thus increase its market share, which is very important.

ECM-ISC is widely used in the study of continuance intention in information systems. But this study is the first to apply this theory to the specific object of Cloud Note and incorporate brand intimacy to empirically test the relationship between various variables. The research results indicate that expectation confirmation positively affects perceived usefulness and satisfaction, and perceived usefulness and satisfaction are important predictors of continuance intention. Continuance intention significantly affects brand intimacy, and perceived usefulness and satisfaction can partially mediate the relationship between expectation confirmation and continuance intention. All assumptions in the paper are valid. This is consistent with the research by Bhattacherjee (2001) . The results of this study not only enrich previous research in the fields of ECM-ISC and Cloud Note, but also demonstrate the impact of continuance intention on brand intimacy. This study has several limitations. First of all, this research data is only from Chinese Mainland. Due to the limited scope, further research can be extended to respondents in other countries, and cross-country comparisons can be made to improve the integrity of the research. Secondly, this study mainly uses questionnaire survey method to collect data. Further research can consider using qualitative research methods to further optimize theoretical models and enhance the scientific nature of the research. Finally, due to the limited discussion of external factors in ECM-ISC, further research can incorporate external factors into this research model to make it completer and more accurate in terms of prediction and interpretation.

References

Ashfaq, M., Yun, J., Yu, S., & Loureiro, S. M. C. (2020). I, Chatbot: Modeling the determinants of users' satisfaction and continuance intention of AI-powered service agents. Telematics and Informatics, 54, 101473. https://doi.org/https://doi.org/10.1016/j.tele.2020.101473

Bagozzi, R. P. (1981). ATTITUDES, INTENTIONS, AND BEHAVIOR - A TEST OF SOME KEY HYPOTHESES. Journal of Personality and Social Psychology, 41(4), 607-627.

Bagozzi, R. P., & Yi, Y. (1988). On the Evaluation of Structural Equation Models. Journal of the Academy of Marketing Science, 14(1), 33-46.

Bao, D.-M. (2014). Evaluation and prospect of personalized chemistry information service products in digital library. Library Magazine, 33(3), 31-36. https://doi.org/10.13663/j.cnki.lj.2014.03.005

Bhattacherjee, A. (2001). Understanding Information Systems Continuance: An Expectation-Confirmation Model. MIS Quarterly, 25(3), 351. https://doi.org/10.2307/3250921

Bouma, G. D., & Ling, R. (2000). Ethics in human research. The research process, 4, 190-202.

Cai, X.-L., & Zhan, Q.-D. (2018). Research on Personal Knowledge Management Tools in Web 2.0 Environment. information theory and Practice, 41(3), 136.

Chen, Y. Q. (2021). Industry: China's membership economy is still facing payment difficulties but potential users are sizable. Retrieved March 14,2023 from https://baijiahao.baidu.com/s?id=1697162723219822188&wfr=spider&for=pc

Cheng, L. K., Huang, H.-L., & Lai, C.-C. (2022). Continuance intention in running apps: the moderating effect of relationship norms. International Journal of Sports Marketing and Sponsorship, 23(1), 132-154. https://doi.org/10.1108/IJSMS-08-2020-0143

Cheng, Y.-M. (2018). What drives cloud ERP continuance? An integrated view. Journal of Enterprise Information Management, 31(5), 724-750. https://doi.org/10.1108/JEIM-02-2018-0043

Cheng, Y.-M. (2019a). How does task-technology fit influence cloud-based e-learning continuance and impact? Education + Training, 61(4), 480-499. https://doi.org/10.1108/ET-09-2018-0203

Cheng, Y.-M. (2019b). A hybrid model for exploring the antecedents of cloud ERP continuance: Roles of quality determinants and task-technology fit. International Journal of Web Information Systems, 15(2), 215-235. https://doi.org/10.1108/IJWIS-07-2018-0056

Cheng, Y.-M. (2020a). Quality antecedents and performance outcome of cloud-based hospital information system continuance intention. Journal of Enterprise Information Management, 33(3), 654-683. https://doi.org/10.1108/JEIM-04-2019-0107

Cheng, Y.-M. (2020b). Students' satisfaction and continuance intention of the cloud-based e-learning system: roles of interactivity and course quality factors. Education + Training, 62(9), 1037-1059. https://doi.org/10.1108/ET-10-2019-0245

Cheng, Y.-M. (2021a). Drivers of physicians' satisfaction and continuance intention toward the cloud-based hospital information system. Kybernetes, 50(2), 413-442. https://doi.org/10.1108/K-09-2019-0628

Cheng, Y.-M. (2021b). Investigating medical professionals' continuance intention of the cloud-based e-learning system: an extension of expectation–confirmation model with flow theory. Journal of Enterprise Information Management, 34(4), 1169-1202. https://doi.org/10.1108/JEIM-12-2019-0401

Cheng, Y.-M. (2021c). Will robo-advisors continue? Roles of task-technology fit, network externalities, gratifications and flow experience in facilitating continuance intention. Kybernetes, 50(6), 1751-1783. https://doi.org/10.1108/K-03-2020-0185

Cheng, Y.-M. (2022). Can tasks and learning be balanced? A dual-pathway model of cloud-based e-learning continuance intention and performance outcomes. Kybernetes, 51(1), 210-240. https://doi.org/10.1108/K-07-2020-0440

Coursaris, C. K., van Osch, W., & Sung, J. (2013, 2013/01). The Diffusion of Cloud Computing Applications and the Effect of Demographic and Lifestyle Clusters. 2013 46th Hawaii International Conference on System Sciences (HICSS),

Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: A comparison of two theoretical models. Management science, 35(8), 982-1003.

Fornell, C., & Larcker, D. F. (1981). Structural Equation Models with Unobservable Variables and Measurement Error: Algebra and Statistics. Journal of Marketing Research, 18(3), 382-388.

Gatwood, J., Hohmeier, K., Kocak, M., & Chisholm-Burns, M. (2021). Acceptance of productivity software as a course management and collaboration tool among student pharmacists. Currents in Pharmacy Teaching and Learning, 13(4), 361-367. https://doi.org/10.1016/j.cptl.2020.11.019

Gefen, D. (2003). TAM or just plain habit: A look at experienced online shoppers. Journal of Organizational and End User Computing (JOEUC), 15(3), 1-13.

Gui, Y.-F. (2016). The research on the influence factors of continuance usage of tourism APP [Doctor, WuHan University].

Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. J. a. p. (1998). Multivariate Data Analysis, 5th Ed.

Hu, J.-A. (2016). Design and Implementation of Online Cloud Notebook System Based on Spring [Master, Jiangxi Agricultural University].

Huber, F., Meyer, F., & Schmid, D. A. (2015). Brand love in progress – the interdependence of brand love antecedents in consideration of relationship duration. Journal of Product & Brand Management, 24(6), 567-579. https://doi.org/10.1108/JPBM-08-2014-0682

Hung, M.-C., Talley, P. C., Kuo, K.-M., & Chiu, M.-L. (2020). Exploring Cloud-Based Bookstore Continuance from a Deconstructed Task–Technology Fit Perspective. Journal of Theoretical and Applied Electronic Commerce Research, 16(3), 356-376. https://doi.org/10.3390/jtaer16030023

IDC. (2018). Data Age 2025. Framingham:International Data Corporation.

Khan, M. I., & Saleh, M. A. (2022). Facebook Users' Satisfaction and Intention to Continue Using It: Applying the Expectation Confirmation Model. Social Science Computer Review, 08944393211066584.

Kline, R., Kline, R. B., & Kline, R. (2011). Principles and Practice of Structural Equation Modeling. Journal of the American Statistical Association, 101(12).

Li, C.-Y., & Fang, Y.-H. (2019). Predicting continuance intention toward mobile branded apps through satisfaction and attachment. Telematics and Informatics, 43, 101248. https://doi.org/https://doi.org/10.1016/j.tele.2019.101248

Liu, K. (2022). Youdao Cloud Note, Evernote: The C-bit contention never ends. March 14,2023. https://baijiahao.baidu.com/s?id=1734398992659205133&wfr=spider&for=pc

Liu, W., & Ning, X. (2022). Student's Personal Knowledge Management Model under the Complete Credit System.

MacCallum, Browne, R. C., Sugawara, M. W., & Hazuki, M. (1996). Power analysis and determination of sample size for covariance structure modeling. Psychological Methods.

Marsh, H. W., & Hocevar, D. (1985). The application of confirmatory factor analysis to the study of self-concept: First and higher order factor structures and their invariance across age groups.Psychol. Bull. 97: 562-582. Psychological bulletin, 97, 562-582.

Ming, J.-R. (2013). The research on user acceptance of mobile library [博士, WuHan University].

Natarelli, M., & Plapler, R. (2017). Brand Intimacy: A New Paradigm in Marketing. Hatherleigh Press. https://books.google.co.th/books?id=Z-DGDAAAQBAJ

Navaneethakrishnan, K., & Sathish, A. S. (2020). IT'S ALL ABOUT BRAND LOVE-EXPRESSING THROUGH PURCHASE INTENTION, BRAND TRUST AND BRAND

ATTITUDE. Journal of critical reviews, 7(04). https://doi.org/10.31838/jcr.07.04.58

Oliver, R. L. (1980). A cognitive model of the antecedents and consequences of satisfaction decisions. Journal of Marketing Research, 17(4), 460-469.

Podsakoff, P. M., Mackenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: a critical review of the literature and recommended remedies. J Appl Psychol, 88(5), 879-903.

Tang, Y. (2019). Evernote CEO Tang Yi: "Second Brain" will lead the new economy of the cloud note industry [Interview]. https://36kr.com/p/1724768681985

Veeramootoo, N., Nunkoo, R., & Dwivedi, Y. K. (2018). What determines success of an e-government service? Validation of an integrative model of e-filing continuance usage. Government Information Quarterly, 35(2), 161-174. https://doi.org/https://doi.org/10.1016/j.giq.2018.03.004

Wang, T., & Lee, F.-Y. (2020). Examining customer engagement and brand intimacy in social media context. Journal of Retailing and Consumer Services, 54, 102035. https://doi.org/10.1016/j.jretconser.2020.102035

Yu, L. (2020). Research on the Influencing Factors of Users' Continuance Intention toward Mobile Shopping APP [Master, Sichuan Normal University].

Zhao, H., & Khan, A. (2021). The students' flow experience with the continuous intention of using online english platforms. Frontiers in Psychology, 12.

Zhonglin, W., & Baojuan, Y. (2014). Analyses of mediating effects:the development of methods and models. Advances in psychological science, 22(05), 731-745.

Zi, L. (2013). Discussion on the current situation and future design trend of digital notebook [Master, Beijing Institute of Graphic Communication]. https://kns.cnki.net/KCMS/detail/detail.aspx?dbcode=CMFD&dbname=CMFD201401&filename=1014162439.nh&v