

Psychological need satisfaction and autonomous motivation as predictors of readers' continuous participation in reading promotion activities in university libraries

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ABSTRACT

Readers are the target of university libraries' reading promotion activities, and their psychology is a key factor influencing their engagement. Studying the psychology of readers helps in the effective implementation of reading promotion activities. Based on self-determination theory, this article analyses the micro-mechanisms of readers' continuous participation in reading promotion activities from three perspectives: i) satisfaction of basic psychological needs, ii) autonomous motivation, and iii) intention to continue participation. A model was developed to determine the factors that influence readers' intention to continue participating in reading promotion programmes in university libraries. The model was validated using questionnaires and analysed using Structural Equation Modelling (SEM). The results showed that satisfaction of basic psychological needs positively influenced both intention to continue participation and autonomous motivation, with autonomous motivation mediating the relationship between satisfaction of basic psychological needs and intention to continue participation. This study is important to provide a theoretical frame of reference for related research and findings to improve the effectiveness of reading promotion activities in university libraries.

Keywords: *University libraries; Reading promotion; Self-determination theory; Reader psychology; Autonomous motivation; Intention to participate.*

INTRODUCTION

The main goal of libraries is to promote and inspire reading, and the promotion of reading is of great importance to increase readers' willingness to read (Fan, 2022). In recent years, university libraries have used their resources and platforms to organise various reading promotion activities such as book recommendations, human libraries, reading salons,

lectures, competitions and exhibitions in conjunction with events such as World Book Day, These activities were usually conducted at the beginning of the academic year and at graduation to increase readers' interest and reading ability (Feng & Li, 2024). Nonetheless, readers continue to participate, and the strength of their intention to participate reflects their loyalty to the reading promotion activities, which illustrates the attractiveness and value of these activities and determines their effectiveness (Kan & Qian, 2016). Therefore, a psychological perspective needs to be considered to identify the factors that influence readers' intention to participate in reading promotion.

Recent studies have analysed the psychology of readers in this context (Hu, 2020; Wang, 2020; Zhu, Hua & Zhang, 2016). Su (2018) described the psychological motivations for readers' participation in reading promotion in detail and categorised them into five dimensions: i) reading improvement, ii) benefit, iii) sense of achievement, iv) personal interest and v) conformity, which significantly influence the intensity of users' engagement. In addition, Chen (2020) found that readers' motivation for self-development and social motivation significantly increase their intention to continue participating in the university library's reading promotion activities through satisfaction with the experience. Tang and Zhuang (2021) conducted in-depth interviews that led to the identification of internal drivers such as perceived value, personal interest and self-efficacy as significant predictors of participation in reading promotion among university students.

Although the above studies are central to this field as they explore the psychology of readers from a micro-perspective, a systematic analysis of the micro-mechanisms that influence readers' ongoing participation in reading promotion activities remains underrepresented. The present study therefore aims to fill this gap by analysing the relationship between basic psychological need satisfaction, autonomous motivation and intention to continuously participate. To achieve the research objective, this study developed a model based on Self-Determination Theory (SDT) to identify the factors that influence readers' intention to continuously participate in reading promotion activities in university libraries. The results of the empirical analysis will provide relevant data to develop suggestions for improving readers' intention to participate in reading promotion activities offered by the university library.

LITERATURE REVIEW

Several studies conducted worldwide have shown that users' satisfaction and motivation in using library services and participating in library promotional activities are influenced by numerous factors (Abu Bakar et al., 2021; Bunga & Herawati, 2024; Haque et al., 2023). Bunga and Herawati (2024) analysed the factors that influence the reading habits of users in two established libraries in Bangladesh. When analysing the use of a mobile library, they found that the differences in reading habits were due to several significant factors, namely accessibility, mobile library stock, location of the library and time of access. Abu Bakar et al (2021) conducted a study that focused on digitised services in a Malaysian institutional library. They investigated the factors that

influence users' satisfaction in using digital libraries from the perspective of Information System Success Model (ISSM) and Task Technology Fit (TTF) model. The investigation of factors influencing users' intention to continuously use digital libraries were system quality, information suitability, and technology suitability.

Research shows that satisfying basic psychological needs triggers and regulates human behaviour, promotes individual growth and maintains positive functioning (Ryan & Deci, 2020). According to Jiang et al. (2019), in order to attract more readers and improve their participation and engagement in reading, it is important to consider the different cultural backgrounds of readers while providing well-aligned brand services and respecting readers' autonomy in making choices. A recent study found that with the help of organisers, readers can solve the problems they encounter while reading through reading promotion activities (Shi, Xu & Zhang, 2023). This process strengthens their self-efficacy and skills, thus increasing their enthusiasm and loyalty to participate in reading activities. Similarly, Pei (2017) argued that readers who feel respected and cared for during their reading experience in the library develop a bond with the library and respect and admire the librarians. After the exchange of ideas and emotions, these events will foster better understanding, trust and emotional connection, thus increasing readers' enthusiasm and initiative to participate in reading promotion activities.

Self-Determination Theory (SDT) assumes that supporting the satisfaction of an individual's basic psychological needs can stimulate intrinsic motivation and facilitate the internalisation of extrinsic motivation, enabling a high degree of autonomous motivation (Ryan & Deci, 2000). This phenomenon has also been observed in reading promotion, although it remains uncertain due to the lack of consensus. Nevertheless, Wang (2020) argued that reading promotion should follow the principles of diversity in terms of topics, types, audiences and perspectives of recommended reading and provide readers with more choices. By promoting autonomy, readers' reading freedom is expanded, which directly stimulates their interest in reading. Tang and Zhuang (2021) also found that university students assess their needs and intrinsic abilities, including reading, writing and social skills, before deciding to participate in reading promotion activities. Enhancing self-efficacy can increase readers' intrinsic motivation with high levels of autonomy. Kan and Qian (2016) pointed out that in their reading promotion activities, libraries provide readers with an interactive platform for sharing, which not only fulfils their needs for reading and communication, but also provides an opportunity to find like-minded people, which increases their motivation to participate.

Autonomous motivation has been shown to lead to positive outcomes, including higher levels of engagement and energy, reflecting its indispensable role in an individual's learning and growth (Liu et al., 2017). Several empirical studies have shown that autonomous motivation independently influences academic performance, with a positive correlation between higher levels of autonomous forms of motivation in the classroom and the maintenance of good academic outcomes. An empirical study of university students by Núñez and León (2019) found that higher levels of autonomous motivation led to consistently high levels of academic engagement. Manganelli et al. (2019) confirmed that

autonomous motivation predicts better academic performance in university students. However, it remains unclear whether reading promotion improves academic performance equally. Recent studies have shown that readers' autonomous motivation has a significant positive impact on maintaining reading habits (Han, 2018).

Satisfaction of basic psychological needs can indirectly influence an individual's mental state (including life satisfaction, self-esteem, and meaning in life), work meaning, and academic engagement via autonomous motivation. This case is evidenced in the study by Tang et al. (2021), who investigated the contribution of basic psychological need satisfaction to mental health among older people in China and France. The authors found that autonomous motivation partially mediates the relationship between satisfaction of basic psychological needs and mental health among older people in both countries. Autin et al. (2022) also reported a significant mediating effect of autonomous motivation in the relationships between satisfaction of basic psychological needs, relationship needs and feelings of meaning in work. Oram and Rogers (2022) confirmed that students whose basic psychological needs were satisfied adapted better to class, internalised class content better and showed more autonomous forms of academic motivation. More importantly, these events led to better academic outcomes. Nevertheless, the mediating role of autonomous motivation has only been researched and validated in a few areas. Therefore, this study attempts to examine whether the mediating effect of autonomous motivation also applies in the context of reading promotion.

Theoretical background and underlying theory

This study draws on self-determination theory (SDT) to examine the relationships between readers' satisfaction of basic psychological needs, their autonomous motivation, and their intention to continuously participate in university library reading promotion activities. SDT was proposed in 1985 by American psychologists Edward Deci and Richard Ryan (Deci & Ryan, 1985) as a macro-theory of human motivation. The theory is based on three innate basic psychological needs: autonomy, competence and relatedness which has been widely applied in the fields of management, education, health and sport (Ryan & Vansteenkiste, 2023). Autonomy refers to the individual's need to feel that they are in control of their actions. This is supported by an environment that offers choice and freedom, while being undermined by external controls (rewards or punishments). Competence refers to the need to feel capable and effective in one's activities. This is well fostered in a structured environment that provides challenges, positive feedback and opportunities for growth. Relatedness is the need to feel connected to and cared for by others, with respect and care from others, and with help to fulfil this need (Ryan & Deci, 2020). More importantly, satisfying these needs promotes the internalisation of motivation, which is crucial for personality development, self-regulation and self-motivation (Ryan & Deci, 2023).

SDT distinguishes motivation into extrinsic motivation and intrinsic motivation and further subdivides extrinsic motivation into subtypes that form a continuum of internalisation. At one end is external regulation, which is driven by external rewards or punishments, while at the other end is intrinsic regulation, which is completely autonomous and arises from the

enjoyment of the activity itself. Between these extremes lie introjected regulation, identified regulation and integrated regulation, which differ in the degree of internalisation (Ryan & Deci, 2020). External and introjected regulation are considered controlled motivation due to their lower degree of self-determination, while intrinsic, integrated and identified regulation are considered autonomous motivation (Zhang et al., 2010). Controlled motivation drives behaviours to obtain rewards, avoid punishment or escape feelings of guilt and shame, separating the reason for participation from the activity itself. In contrast, autonomous motivations emphasise participation due to the inherent value of the activity and the resulting pleasure (Ma & Jiang, 2018).

SDT assumes that interest and identification with the value of an activity are stronger and more enduring motivations and thus predict positive behavioural outcomes (Autin et al., 2022). Research shows that autonomous motivation has a significant impact on health, well-being, meaning in work, academic engagement and achievement. In educational activities, students with autonomous motivation show more positive behaviour than students with amotivation or controlled motivation. In addition to positively predicting the learning effect and effectively mitigating the decline in the learning effect, autonomous motivation reduces the likelihood of burnout and exhaustion (Noels et al., 2019). These positive outcomes are reinforced by the satisfaction of the basic psychological needs of autonomy, competence and relatedness (Ryan et al., 2019). Conversely, controlled motivation weakens interest in learning and shows no significant correlation with learning intentions (Geng, Yu & Zheng, 2021) indicating that autonomous motivation plays a more important role in individual learning and development. The rationale for selecting SDT as the underpinning theory for this study stems from three main points: i) consistency with the constructs and variables under investigation; ii) its application in terms of productive educational motivation theories, and iii) the relevance of SDT for expanding knowledge about its application in several studies focusing on reading motivation and behaviour.

From the perspective of students and end-users of library services, numerous authors have recommended utilising SDT to promote more inclusion in STEM and facilitate inclusive environments for students' learning, competence and sense of autonomy, thus motivating them to engage in learning and reading activities (Deci & Ryan, 2012; Moore et al., 2020). Similarly, in a recent study, Sutter and Campbell (2022) used SDT to reflect on the role of academic self-determined reading motivation and reading behaviours in the reading achievement of Hispanic and Native American students. Frikha et al. (2024) also used SDT to identify the factors for improving Saudi students' online learning in physical education, highlighting the determinants of motivation, psychological satisfaction, and academic performance. Joy et al. (2025) applied SDT to examine adolescents' perceptions of STEM skills, intrinsic motivation, and basic need satisfaction, focusing on the role of integrative cognition in self-determination.

These reviewed studies provide empirical evidence of the relevance and appropriateness of SDT for understanding the factors influencing reading promotion activities that will be examined as the main outcome in the present study. Based on SDT and related studies on

reading promotion, it was hypothesised that readers whose basic psychological needs are satisfied are likely to have higher intention to continue participation and higher autonomous motivation. Since autonomous motivation correlates positively with the intention to continue participation and partially mediates the relationship between the latter and the satisfaction of basic psychological needs, this study modelled the factors that influence readers' intention to continue participating in the university library's reading promotion activities (see Figure 1).

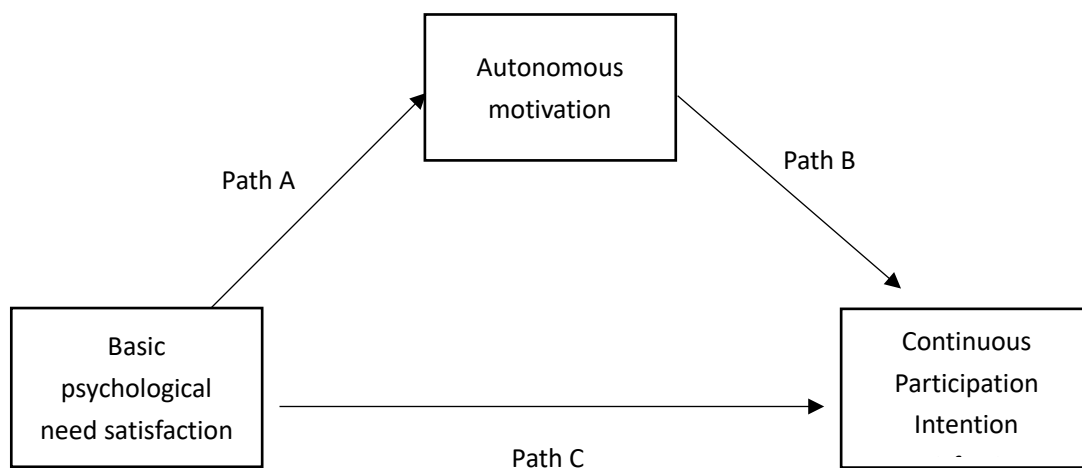


Figure 1: Conceptual framework for the study

METHODS

This study aims to investigate the relationship between basic psychological need satisfaction, autonomous motivation and readers' intention to continuously participate in reading promotion activities. The information obtained from this study provides insights into the potential micro-level psychological mechanisms that play a role for readers in such activities. The study was guided by the following hypotheses:

H1: Satisfaction of basic psychological needs is positively related to students' intention to continue participating in university libraries' reading promotion activities.

H2: Autonomous motivation mediates the relationship between basic psychological need satisfaction and students' intention to continue participating in the university libraries' reading promotion activities.

The survey instrument was developed based on SDT and includes the independent variables of satisfaction of basic psychological needs (Chen et al., 2015; van der Kaap-Deeder et al., 2020), autonomous motivation (Guay et al., 2000; Bao, 2006) and the dependent variable of continuous intention (Di, 2023; Zeng, 2007). The items were rated on a 5-point Likert scale. Table 1 lists the variables, items and sources.

Table 1: Measurement scale of the research variables

Latent Variable	Sub Variable	Measurement Item	Source
Basic Psychological Need Satisfaction (BPNS)	Autonomy satisfaction (AS)	I felt a sense of choice and freedom in the activity.	Chen et al. (2015) van der Kaap-Deeder et al. (2020)
		I felt that my decisions in the activity reflect what I really want.	
		I felt my choices in the activity express who I really am.	
		I felt I had been doing what really interested me in the activity.	
	Competence satisfaction (CS)	I felt confident that I could do things well in the activity.	
		I felt capable of what I did in the activity.	
		I felt competent to achieve my goals in the activity.	
		I felt I could successfully complete difficult activity tasks.	
	Relatedness satisfaction (RS)	I experienced a good bond with other people in the activity.	
		I felt close and connected with other people in the activity. I felt that I belonged to the activity group. I experienced a warm feeling with the people I spent time with.	
Autonomous Motivation (AM)		I believe this activity aligns with my personal growth goals.	Guay et al. (2000) Bao (2006)
		I think this activity helps improve my skills and abilities.	
		Participating in this activity allows me to experience value and meaning.	
		Performing well in this activity is important to me.	
		I enjoy participating in this activity. I find participating in this activity pleasurable.	
Continuous Participation Intention (CPIN)		I intend to continue to participate in this activity in the future	Di (2023) Zeng (2007)
		I intend to recommend this activity to my classmates and friends.	
		I intend to continue to pay attention to other reading promotion activities organized by the library.	

Data collection

To ensure the effectiveness of the survey, the questionnaire was distributed locally in April 2024 after the completion of a reading promotion activity at a top university in Hubei Province, China. Respondents were informed of the purpose and content of the questionnaire. Their consent to participate was then obtained by scanning a QR code to complete the questionnaire. A total of 245 questionnaires were distributed, and after excluding invalid responses due to the response pattern or logical inconsistencies, 226 valid questionnaires were received. The response rate for the survey was therefore 92.4%. This high response rate is due to the method used to distribute the questionnaire. The questionnaires were distributed on site at the end of a reading promotion event at a university. All potential participants were able to respond immediately, hence no follow-ups or reminders were necessary.

Reliability and validity of the scale

The reliability of the questionnaire was analysed using SPSS version 24 and resulted in a Cronbach's α value of 0.927, indicating good overall reliability of the questionnaire. All latent variables had Cronbach's α values of more than 0.8 (see Table 2). These results reflect that the constituent items of each variable are reliable and satisfactory (Zeng & Huang, 2005). As for the validity test, the convergent validity and discriminant validity were analysed. The KMO value was 0.909 and the Bartlett's test for sphericity was significant at 0.000, indicating that the data were highly suitable for factor analysis (Li & Xin, 2008). A confirmatory factor analysis (CFA) was then conducted using AMOS software to test the validity of the questionnaire. Factors of low quality were removed from the scale after the first CFA. The results of the CFA are shown in Table 2.

Table 2: Measurement results of factor loadings, Cronbach's α , CR and AVE

Latent Variable	Factor	Factor loading	Cronbach's α	CR	AVE
Basic Psychological Need Satisfaction (BPNS)	AS	0.614	0.903	0.803	0.581
	CS	0.842			
	RS	0.810			
Autonomous Motivation (AM)	AM1	0.762	0.847	0.842	0.517
	AM2	0.742			
	AM3	0.709			
	AM5	0.669			
	AM6	0.708			
Continuous Participation Intention (CPIN)	CPIN1	0.766	0.858	0.862	0.676
	CPIN2	0.838			
	CPIN3	0.860			

The values for the average variance extracted (AVE) for each group of variables and the composite reliability (CR) are above 0.5 and 0.8 respectively. The measured values of the scale therefore show good convergent validity. In addition, the square roots of the AVE values for each variable are greater than their correlation coefficients with other variables (Table 3), indicating good discriminant validity of this scale (Fornell & Larcker, 1981).

Table 3: Square Roots of AVE for each variable and inter-variable correlation coefficients

	BPNS	AM	CPIN
BPNS	0.762		
AM	0.588**	0.719	
CPIN	0.527**	0.545**	0.822

Note: * P<0.05, **P<0.01, ***P<0.001.

Evaluation of the model fit

The construction of the Structural Equation Model (SEM) and the assessment of model fit were performed using SPSS Amos 26. As shown in Table 4, the observed model fit indices indicated that the measured values of the critical fit indices met the established criteria, indicating a favourable model fit (Wen et al., 2004).

Table 4: Results of model fit assessment

Model fit indices	Observed value	Fit standard/Critical value	Conformity
CMIN/DF	2.193	[1,3]	Yes
RMR	0.024	<0.05	Yes
SRMR	0.045	<0.05	Yes
RMSEA	0.073	<0.08	Yes
IFI	0.961	>0.9	Yes
TLI	0.946	>0.9	Yes
CFI	0.961	>0.9	Yes

Demographic analysis

More than two-thirds of the survey participants were female (73.9%; n = 167), while the proportion of male participants was 26.1% (n = 59). All participants were students, 139 from the class of 2023 (61.5%), 57 from the class of 2022 (25.2%), 22 from the class of 2021 (9.8%), and 8 from the class of 2020 (3.5%). The predominant fields of study included business, law, literature, science, engineering, medicine and management. In terms of frequency of participation in the reading promotion activities, most students participated 1-2 times per month (44.7%; n = 101), followed by those who participated 3-4 times per month (25.2%; n = 57), and only 7.1% (n = 16) participated 5-8 times per month, while 23% (n = 52) participated occasionally.

RESULTS

Relationship between satisfaction of basic psychological needs, autonomous motivation and continuous intention to participate

The results indicate that all standardised path coefficients between the variables are positive, with critical ratio (C.R.) values (equivalent to T-values) of over 1.96. The significance (P-values) of the three hypothesised paths is less than 0.001. This is evident in Figure 2 and

Table 5. The independent variables have a significant positive influence on the dependent variable, the intention to participate continuously and autonomous motivation. In particular, the intention to participate continuously and autonomous motivation are positively and significantly influenced by the satisfaction of basic psychological needs. Autonomous motivation also has a significant and positive influence on the intention to participate continuously and thus supports the first and second hypotheses tested in this study.

The results suggest that the more effectively libraries satisfy the basic psychological needs of readers in the context of reading promotion, especially the satisfaction of the needs for autonomy, competence and relatedness, the higher the degree of perceived satisfaction of these needs, which leads to an increased intention to continuously participate in reading promotion activities. In addition, higher satisfaction of basic psychological needs leads to greater internal motivation of readers, a stronger internalisation of external motivations and the development of a high degree of autonomous motivation. Readers' autonomous motivation independently influences their intention to participate continuously, with a higher level of autonomous motivation indicating a greater intention to participate continuously.

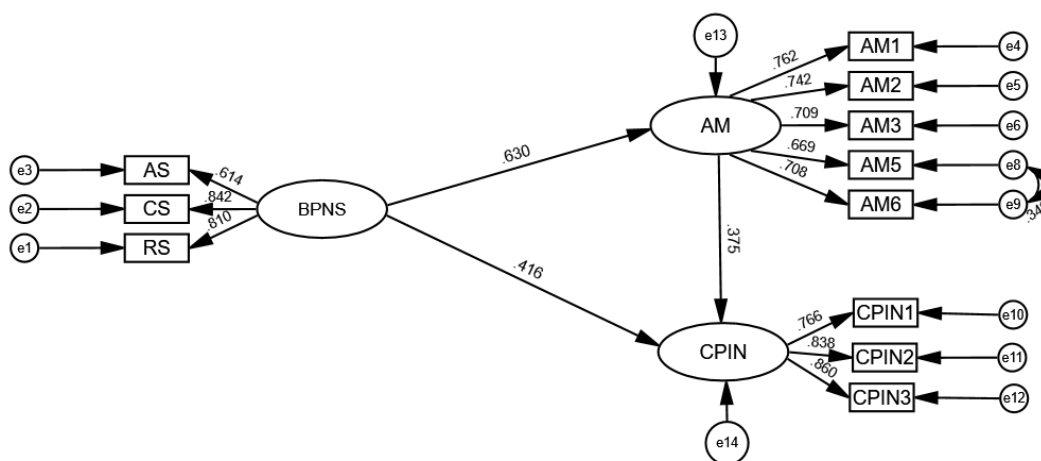


Figure 2: Diagram of the structural equation model and standardised path coefficients

The analysis of the path coefficients (Figure 2) shows that the effects of satisfying basic psychological needs on autonomous motivation and the intention to participate continuously are in descending order: Satisfaction of Competence Needs, Satisfaction of Relationship Needs and Satisfaction of Autonomy Needs. Therefore, satisfying readers' competence needs should be prioritised in order to facilitate reading promotion activities. This insight suggests that it is beneficial for reading promotion to first ensure that the content of the reading promotion matches the readers' abilities and supports their competence development. Attention, guidance and support should then be provided throughout the process. Giving readers sufficient choice and autonomy and focusing on teaching activity values and enhancing activity experiences can increase their intention to participate continuously. This approach can ultimately increase the effectiveness of reading promotion activities in university libraries.

Table 5: Estimated values and validation results of the structural equation model

Hypotheses	Path	Standardized Path Coefficients	C.R. value	P- value	Results
H1	BPNS → CPIN	0.416	4.467	***	Supported

Note: * P<0.05, **P<0.01, ***P<0.001。

The mediating role of autonomous motivation

To test the mediating role of autonomous motivation between the satisfaction of basic psychological needs and the intention to continuously participate, the bootstrap method was used in this study to examine the entire mediation model. A significant mediation effect exists when the 95% confidence interval (CI) of the indirect effect does not include zero and vice versa (Fang & Zhang, 2012). Using 2000 bootstrap samples, autonomous motivation showed a significant mediation effect of 0.262 (95% CI 0.109 - 0.560) between basic psychological need satisfaction and continuous intention to participate, as shown in Table 6. Moreover, the direct effect of basic psychological need satisfaction on intention to participate continuously remains significant even after including the mediating variable. This result shows that autonomous motivation partially mediates the relationship between basic psychological need satisfaction and intention to participate continuously, thus supporting the second hypothesis.

Table 6: Results of the mediation analysis

Path	Effect Type	Effect Value	95% Confidence Interval		value	Result
			Lower	Upper		
BPNS → AM → CPIN	Indirect Effect	0.262	0.109	0.560	**	Supported
	Direct Effect	0.462	0.187	0.701	**	
	Total Effect	0.724	0.567	0.936	***	

Note: * P<0.05, **P<0.01, ***P<0.001

The present results indicate that the satisfaction of basic psychological needs not only has a direct positive effect on the readers' intention to continuously participate in reading promotion activities but also reinforces this intention through the mediating effect of autonomous motivation. In particular, the satisfaction of autonomy, competence and relationship needs can maintain and stimulate readers' autonomous motivation to a certain extent. By satisfying these three needs, libraries enable readers to choose and perform actions based on their needs and abilities in the context of reading promotion. As a result, readers can fully demonstrate and develop their skills, make meaningful connections with other participants in the activities, develop a sense of belonging, and thus experience the joy of participating in reading promotion activities and the recognition of their value. This event ultimately strengthens readers' autonomous motivation. When readers have a high level of autonomous motivation, they participate in the activities out of interest and a sense of meaningfulness, leading to positive psychological experiences and sustained participation in reading promotion activities.

DISCUSSIONS

In this study, the two research hypotheses: i) the positive relationship between the basic psychological needs and the students' intention to continue participating in the reading promotion activities of the university libraries; and ii) the mediating role of autonomous motivation, were empirically confirmed. The finding regarding the positive relationship between basic psychological need satisfaction and intention to participate in university libraries' reading promotion activities is consistent with reports from various studies in China (Wang, 2020; Hu, 2020; Chen, 2020) and other countries (Moore et al., 2020; Sutter & Campbell, 2022). Thus, the intensity of users' engagement was significantly influenced by five dimensions of psychological motivations, including reading improvement, benefit, sense of achievement, personal interest and conformity. Our finding confirms a study by Chen (2020) that readers' intention to continue participating in the university library's reading promotion activities due to satisfaction with the experience was reinforced by their motivation to promote reading and their social motivation.

Compared with research conducted outside China, a study by Joy et al. (2025) found that creating an inclusive environment for students' learning, competence and autonomous awareness is key to strengthening students' inclusion in STEM (science, technology, engineering and maths) subjects. Consistent with the present study, these events were identified as motivating factors for students' participation in learning and reading activities. Similarly, self-determined reading motivation, psychological satisfaction, and reading behaviours were important underlying psychological needs that promote students' reading achievement (Sutter & Campbell, 2022) and academic performance (Frikha et al., 2024).

The second hypothesis was supported by the significant mediating role of autonomous motivation in the link between basic psychological needs and students' intention to continue participating in university libraries' reading promotion activities. Our finding is consistent with a study conducted among older people in China and France in which autonomous motivation mediated the link between basic psychological need satisfaction and mental health (Tang et al., 2021). This event reflects that people's innate motivation can indirectly influence their mental state, work meaning, and academic engagement through the satisfaction of basic psychological needs. Few other studies have demonstrated the mediating effect of autonomous motivation in the relationships between satisfaction of basic psychological needs and explanatory variables such as relationship needs and meaning in work (Autin et al., 2022) and academic motivation (Oram & Rogers, 2022). When readers' basic psychological needs are met, they are likely to adapt better to the learning environment and show better forms of academic and reading motivation, which are core areas of continuous engagement in reading promotion in university libraries. Our findings add to the limited data available on the mediating effect of autonomous motivation in reading promotion.

Based on the results of this empirical analysis, several recommendations are proposed for university libraries to implement reading promotion activities. Initiatives need to be taken to

fulfil the readers' need for autonomy. Despite the rapid development of reading promotion activities in university libraries, an authoritarian mentality of "I organise, you participate" can create a sense of control and oppression among readers. To fulfil the need for autonomy, it is important to overcome the top-down approach and offer readers a wide choice and autonomy. For example, libraries can offer a variety of books, flexible opening hours and options such as electronic books, audiobooks, videos, music and images to cater for readers' digital reading habits. Diversify the types and topics of reading promotion activities to give readers more opportunities to participate. Set up a customised service area in the personal portals that allows readers to tailor notifications to their interests, meeting their psychological need for personal attention and understanding with a tailored approach.

Promotional activities should focus on satisfying readers' literacy needs. Different types of reading promotion activities have corresponding competency requirements for readers, which assess their abilities before participation. Therefore, when designing reading promotion activities, it is important to segment the target group and pay attention to differentiated content design. The activities should be carried out at different levels of difficulty to provide a platform for readers with different abilities and thus give them the opportunity to showcase their talents and strengthen their self-efficacy. In addition, reading promotion activities should not only be tailored to readers' abilities, but also promote their skills. The series should include activities with different levels of difficulty that gradually guide readers to improve their reading skills. For example, start with film screenings and combine books, music, salons, lectures, etc. into a comprehensive and multidimensional reading development series. Developmental reading activities should be implemented, especially those that focus on completing assignments, earning points, and advancing in grade level. These activities are expected to improve readers' reading skills, promote a sense of accomplishment, and cultivate sustained self-motivation.

The relationship needs of readers must be satisfied. The relationship between university libraries and participants in reading promotion programmes should not be fleeting. Emotional connection and support are essential to achieve sustained participation. Robust communication platforms for real-time interaction between organisers and readers are needed before activities begin to strengthen relationships. Readers need to be encouraged to share resources, feelings and familiarity. During activities, it is important to fully engage readers by scheduling interactive sessions between organisers and readers as well as between readers. During the interactive sessions, games can be used to immerse the readers in the atmosphere of the activity. The benefits can be further enhanced by cultivating loyal supporters to encourage communication, drive socialisation, nurture readers' emotions and foster a sense of belonging. Readers must always feel respected and cared for during activities. After the activities, they can be encouraged to actively share their experiences and voluntarily collect feedback in groups to further strengthen relationships. By sharing knowledge and emotions, mutual understanding between the library and readers is promoted, trust is built and readers' enthusiasm and initiative in participating in reading promotion activities is strengthened.

Also important is the need to encourage readers' autonomous motivation. While rewards designed to encourage readers to participate in activities may have a temporary effect, true loyalty to reading promotion activities ultimately rests on their intrinsic appeal and value. To foster readers' autonomous motivation, it is important to satisfy their three basic psychological needs while promoting the activities' values and enhancing the experience. Just as "the aroma of wine is not afraid of deep cellars", effective promotion is about communicating the ideals and values of reading promotion activities through various forms such as promotional texts, posters and videos. Highlighting achievements and identifying exemplary readers such as reading stars or activity enthusiasts can be promoted across campus to emphasise improving readers' literacy skills. This approach helps readers see the value of the activities and align them with their personal growth goals. Most importantly, libraries ensure that promotional activities are consistent with the actual results of reading promotion activities. This authenticity gives readers a sense of accomplishment, immerses them in the joy of reading, provides them with satisfying experiences and inspires inner recognition. By evoking resonance and encouraging genuine engagement, readers' autonomous motivation can be truly stimulated.

CONCLUSIONS

In this study, SDT was applied to create a conceptual model of the factors that influence readers' intention to continuously participate in reading promotion activities in university libraries. It was used to analyse the micro-mechanisms underlying readers' continuous participation in reading promotion activities, thus providing a theoretical frame of reference for related research and insights for improving the effectiveness of reading promotion activities in university libraries.

Despite the promising results of this study in terms of approaches that can be adopted by university libraries to improve reading promotion activities, it is equally important to point out the limitations of the study. All participants were from a first-class university in Hubei Province, China, which means that the results may not be generalisable to library contexts in other university settings, especially those with different administrative policies. In addition, the questionnaire was only given to participants who were willing to take part in the study and who gave their signed consent. Therefore, non-probability methods were used in the selection of the sample, which further limits the extrapolation of the results. Nevertheless, the large sample size helped to overcome some of these limitations. It is also important to recognise the multifactorial nature of reading promotion activities, which makes it difficult to use a single model such as SDT to fully understand the influencing factors. Future studies could consider a combination of SDT and other related theories to shed light on the findings of the present study.

Although some progress has been made, there are still areas that need to be further explored in future research: i) independently validating the relationships between the three basic psychological needs, autonomous motivation, and intention for continuous participation; ii)

investigating whether the research results vary between different types of reading promotion activities and readers of different genders; and iii) further investigating the relationship between controlled motivation and intention for continuous participation, especially in the context of university libraries' reading promotion activities. In addition, this study was conducted in Chinese universities and its transferability to other cultural backgrounds should be further investigated.

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CONFLICT OF INTEREST

The authors have no relevant competing interests to declare in relation to the content of this article.

AUTHOR CONTRIBUTION

Conceptualization: [Huijie,W.; Haidong, Y.], Methodology: [Huijie,W.], Formal analysis and investigation: [Huijie,W.], Writing - original draft preparation: [Huijie,W.]; Writing - review and editing: [Huijie,W.; Haidong, Y.]

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