Perceived Usefulness and Self-Reported Use of Digital Library Services among Students of Perpustakaan Tun Abdul Razak, UiTM Shah Alam

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ABSTRACT

Academic libraries provide extensive digital services, but favourable evaluations do not necessarily translate into frequent use. Guided by perceived usefulness within the Technology Acceptance Model (TAM), this study examined self-reported use of digital services at Perpustakaan Tun Abdul Razak (PTAR), Universiti Teknologi MARA (UiTM) Shah Alam, students' satisfaction with these services, and the relationship between perceived usefulness and use. A cross-sectional online survey of 132 students who use PTAR's digital services was conducted in 2025. The questionnaire, with perceived usefulness items adapted from TAM and use and satisfaction items developed for PTAR's services, was reviewed by experts and pilot-tested before use. The scales showed high internal consistency (Cronbach's α = .920 to .982). Mean agreement with self-reported use statements was moderate (2.87 to 3.41), with off-campus access rated highest and the PERMATA online catalogue lowest, whereas satisfaction was high (4.12 to 4.23). Perceived usefulness was strongly and positively associated with self-reported use (Spearman's ρ = .645, 95% CI [.52, .74], $p < .001$, two-tailed). The descriptive contrast between favourable evaluations and more moderate use suggests that satisfaction scores alone do not establish the extent of service use, and highlights perceived usefulness as a key correlate of use. Libraries may therefore benefit from demonstrating the academic value of individual services, particularly the catalogue, and from combining satisfaction surveys with usage data. The study offers a focused, TAM-informed account of digital library use in a Malaysian academic library. As respondents were existing users, measures were self-reported and the design was cross-sectional, the findings cannot be generalised to all students or interpreted causally.

Keywords: digital library services; perceived usefulness; Technology Acceptance Model; self-reported use; user satisfaction

INTRODUCTION

Academic libraries have moved a large part of their collections and services online. Students now search catalogues, download e-books and e-journals, consult subscribed databases and retrieve theses from institutional repositories, often without entering the library building. Research on electronic resources has documented this shift over two decades, showing that scholars and students increasingly locate and read material online (Tenopir, 2003; Tenopir et al., 2009). The COVID-19 pandemic accelerated the change, as libraries closed their doors and relied on digital services to support remote teaching and learning (Ifijeh & Yusuf, 2020; Martzoukou, 2020; Mehta & Wang, 2020).

Investment in digital services, however, does not guarantee their use. Research on digital libraries has long shown that potential users may not use systems despite their availability (Hong et al., 2002), and log studies show that use is often concentrated on a small part of what libraries provide (Jamali et al., 2005). For library managers, this raises a practical question: which services do students actually use, and what distinguishes students who use them more? The Technology Acceptance Model (TAM) offers a well-established answer, proposing that people use a technology to the extent that they believe it will help them perform better (Davis, 1989; Davis et al., 1989).

In Malaysia, perceived usefulness has been shown to predict e-library use among university students (Ramayah & Aafaqi, 2004).

Many library evaluations rely on satisfaction surveys. Information systems research, however, treats satisfaction and use as distinct dimensions of system success (DeLone & McLean, 1992, 2003): a student may evaluate a service favourably while using it only occasionally. Examining both can show where favourable evaluations are not matched by engagement, and therefore where user education or further investigation is warranted.

This study examines these questions at Perpustakaan Tun Abdul Razak (PTAR), the library of Universiti Teknologi MARA (UiTM) Shah Alam, one of the largest academic libraries in Malaysia. Rather than testing the full Technology Acceptance Model (TAM), it investigates one TAM-informed association alongside descriptive patterns of satisfaction and self-reported use. The study addresses three research questions:

RQ1: What patterns emerge in students' self-reported use of PTAR's digital services?

RQ2: How satisfied are students with PTAR's digital services?

RQ3: Is perceived usefulness associated with students' self-reported use of PTAR's digital services?

LITERATURE REVIEW

The Technology Acceptance Model

TAM was derived from the Theory of Reasoned Action (Fishbein & Ajzen, 1975), which, like the Theory of Planned Behaviour (Ajzen, 1991), explains behaviour through beliefs and intentions. TAM proposes that two beliefs shape a person's acceptance of a technology: perceived usefulness, the degree to which a person believes that using a system will enhance their performance, and perceived ease of use, the degree to which using it will be free of effort (Davis, 1989; Davis et al., 1989). Of the two, perceived usefulness has consistently been the stronger predictor of use. Meta-analyses and reviews confirm the robustness of this relationship across settings (King & He, 2006; Legris et al., 2003; Marangunić & Granić, 2015), including education (Granić & Marangunić, 2019). Later extensions added social influence and cognitive processes (Venkatesh & Davis, 2000), antecedents of ease of use (Venkatesh & Bala, 2008) and integrated competing models into the Unified Theory of Acceptance and Use of Technology (Venkatesh et al., 2003), but perceived usefulness, in the form of performance expectancy, remains central.

Acceptance of Digital Libraries

TAM has been widely applied to digital libraries. In a study of 585 users of a university digital library, Hong et al. (2002) found strong support for TAM, with relevance having the strongest effect on perceived usefulness. Thong et al. (2002) showed that interface characteristics, organisational context and individual differences shape acceptance through perceived usefulness and ease of use, and Park et al. (2009) confirmed the model for digital library users in developing countries. In Malaysia, Ramayah and Aafaqi (2004) found among 704 university students that perceived usefulness had a direct effect on e-library usage and fully mediated the effect of ease of use, and Abdul Rahman and Jamaludin (2017) proposed a framework in which performance expectancy, the UTAUT counterpart of perceived usefulness, predicts the continued use of university digital libraries.

Satisfaction and Use

Information systems research treats user satisfaction and use as related but distinct outcomes of a successful system (DeLone & McLean, 1992, 2003). Satisfaction reflects users' evaluation of a service, while use reflects their behaviour. Expectation–confirmation research shows that satisfaction shapes users' intention to continue using a system (Bhattacherjee, 2001), but favourable intentions and evaluations do not always translate into frequent use. Studies of information-seeking behaviour also show that convenience strongly shapes which sources people choose, so that easily accessible sources may be preferred even when others are rated highly (Connaway et al., 2011). A library may therefore achieve high satisfaction while some services remain underused, which is why acceptance models emphasise beliefs about usefulness as a correlate of use.

Research Gap and Hypothesis

Although technology acceptance research has examined digital libraries, service-specific self-reported use and satisfaction are not always reported together. The present single-institution study provides a descriptive account of both constructs and tests one TAM-derived relationship rather than the full model: H1 proposes that perceived usefulness is positively associated with self-reported use of PTAR's digital services (Figure 1).

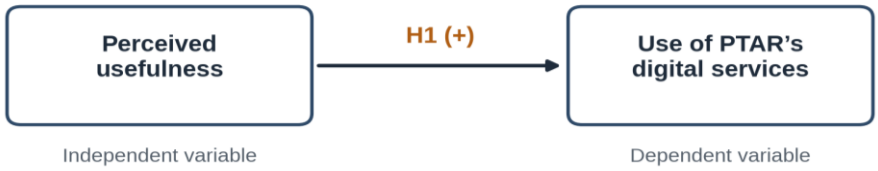


Figure 1: Conceptual framework adapted from the Technology Acceptance Model (Davis, 1989)

METHODOLOGY

Research Design and Participants

A quantitative, cross-sectional survey design was used. The participants were students of UiTM Shah Alam who use PTAR's digital services. Because no complete list of digital service users was available, convenience sampling was used (Etikan et al., 2016), and the questionnaire was distributed online through Google Forms in 2025. A total of 132 valid responses were received. The study received ethical approval from the Universiti Teknologi MARA Negeri Sembilan Branch Research Ethics Committee (approval code REC/1414/2025) as a minimal-risk study. Participation was voluntary. Before answering, respondents confirmed that they were aged 18 or above and gave informed consent, and they were told that they could withdraw at any time without giving a reason and that their responses would be kept confidential and used only for this study. As a non-probability sample of existing users, the findings describe these participants rather than the wider UiTM student population.

As the primary analysis was correlational, sample adequacy was assessed by statistical power (Cohen, 1988; Faul et al., 2009). At $\alpha = .05$ and power = .80, about 85 respondents are needed to detect a medium correlation ($r = .30$). With 132 respondents, the study could detect correlations as small as about $r = .24$. Power concerns the detection of the association and does not overcome the limits on generalisation that arise from non-probability sampling.

Most respondents were aged 21–25 (65.2%) and female (68.2%), and most were undergraduates (63.6%), followed by diploma (23.5%), postgraduate (10.6%) and ACCA professional programme students (2.3%) (Table 1). Respondents were spread across all four years of study: Year 1 (27.3%), Year 2 (29.5%), Year 3 (19.7%) and Year 4 (23.5%).

Table 1: Respondent profile (n = 132)

Characteristic	Category	n	%
Age	18–20	35	26.5
	21–25	86	65.2
	26–29	11	8.3
Gender	Female	90	68.2
	Male	42	31.8
Programme	Undergraduate	84	63.6
	Diploma	31	23.5
	Postgraduate	14	10.6
	ACCA	3	2.3

Instrument

The questionnaire had four sections: respondent profile; use of PTAR's digital services, covering the online catalogue (PERMATA), the institutional repository, subscribed databases, e-books and e-journals, and off-

campus access; satisfaction with the services; and perceived usefulness, measured with ten items adapted from Davis (1989) and worded for PTAR's digital services; the use and satisfaction items were developed for this study from the services that PTAR offers. All items used a five-point agreement scale from 1 (strongly disagree) to 5 (strongly agree). Use was therefore measured as agreement with self-reported use statements rather than as recorded access frequency. Content validity was established through review by supervisors and academic experts, and the questionnaire was refined after a pilot test.

Reliability was assessed with Cronbach's alpha (Table 2), using .70 as the minimum acceptable value (Nunnally & Bernstein, 1994). One use item had a very low corrected item–total correlation (.051) and was removed, which raised the alpha of the use scale from .858 to .920. All three scales showed high internal consistency, although coefficients above .90 may also indicate some item redundancy (Tavakol & Dennick, 2011). Because factor analysis was not conducted, construct validity rests on the content review rather than on statistical testing, and the results are interpreted at the level of each scale.

Table 2: Reliability of the scales

Scale	Items	Cronbach's α
Use of digital services	5	.920
Satisfaction	5	.962
Perceived usefulness	10	.982

Data Analysis

Scale scores were calculated as the mean of their items. Descriptive statistics were used to describe usage patterns and satisfaction (RQ1 and RQ2). A normality test showed that the use scores were not normally distributed, so Spearman's rank-order correlation was used to test H1 (RQ3) (Field, 2018). A 95% confidence interval for the reported coefficient was calculated using Fisher's z transformation with the standard error recommended for Spearman's coefficient (Bonett & Wright, 2000). All tests were two-tailed, with significance set at $p < .05$. Analyses were conducted in IBM SPSS Statistics.

FINDINGS AND DISCUSSION

Usage Patterns (RQ1)

Agreement with self-reported use statements was moderate, with item means between 2.87 and 3.41 (Figure 2). Off-campus access had the highest mean (M = 3.41), followed by e-books and e-journals for assignments (M = 3.38) and subscribed databases (M = 3.36). The institutional repository had a lower mean (M = 3.23), and the online catalogue, PERMATA, was the only service below the scale midpoint (M = 2.87).

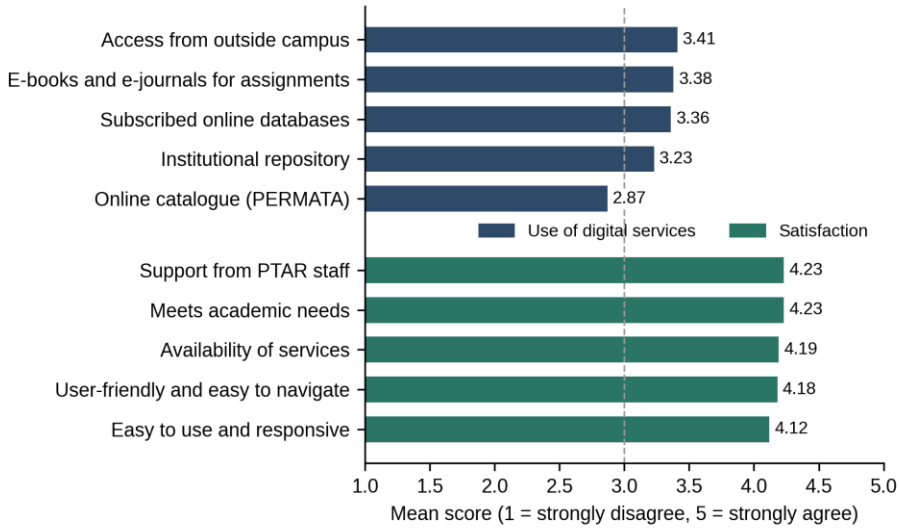


Figure 2: Mean agreement with self-reported use and satisfaction statements (n = 132; five-point scale)

Within this sample, respondents endorsed statements about off-campus access and electronic resources more strongly than the statement about the PERMATA catalogue. One plausible interpretation is that students favour services that deliver full text directly over catalogue searching, consistent with evidence that convenience is a critical factor in the choice of information sources (Connaway et al., 2011) and with the shift towards remote access accelerated by the pandemic (Martzoukou, 2020). The pattern may, however, also reflect differences in academic tasks or service awareness, and the questionnaire does not establish why respondents reported different levels of use. The item means are levels of agreement, not transaction counts or direct measures of usage frequency.

Satisfaction (RQ2)

Satisfaction was high across all items, with means between 4.12 and 4.23. Students were most satisfied with the support provided by PTAR staff (M = 4.23) and with how well the services meet their academic needs (M = 4.23), and least satisfied, though still positive, with how easy and responsive the system is when accessing e-resources (M = 4.12).

Perceived Usefulness and Use (RQ3)

Perceived usefulness had a strong, positive and significant relationship with the use of PTAR's digital services (Table 3). H1 was therefore supported. Even at the lower bound of its 95% confidence interval, the association is moderate to strong. As a correlation, it does not establish that usefulness causes greater use, nor does it measure actual frequency of service use.

Table 3: Spearman correlation between perceived usefulness and use (n = 132)

Variables	ρ	95% CI	p
Perceived usefulness and use of digital services	.645	[.52, .74]	< .001

This finding is consistent with TAM and with earlier digital library studies, in which perceived usefulness was the main belief associated with acceptance (Davis, 1989; Hong et al., 2002), including among Malaysian university students (Ramayah & Aafaqi, 2004). It also agrees with meta-analytic evidence that perceived usefulness is the most consistent predictor of technology use (King & He, 2006). Students who regarded PTAR's digital services as more useful for their academic work also reported using them more. A coefficient of this size means that beliefs about usefulness and reported use rise closely together: the services that students see as relevant to their assignments and research are those they report using. This suggests that strengthening perceived usefulness, for example by demonstrating how specific services support coursework, is a plausible way to increase use, although longitudinal or experimental evidence would be needed to confirm this. Because both constructs were measured in the same self-report survey, common-method effects cannot be excluded (Podsakoff et al., 2003).

The Contrast between Satisfaction and Use

Satisfaction items received consistently favourable ratings (M = 4.12 to 4.23), whereas agreement with self-reported use statements was more moderate (M = 2.87 to 3.41) (Figure 2). Because the two sets of items measure different constructs, these ranges provide a descriptive juxtaposition rather than a tested satisfaction–use gap, and the study did not estimate a correlation between satisfaction and use. The pattern is nevertheless consistent with the view that satisfaction and use are distinct outcomes (DeLone & McLean, 2003), and it supports the practical value of assessing both constructs rather than relying on satisfaction alone. Perceived usefulness, in contrast, was strongly associated with self-reported use. Future research could test the satisfaction–use relationship directly with comparable measures and service-use logs.

Implications for Practice

Three implications follow for PTAR and similar academic libraries. First, promotion should emphasise usefulness, using discipline-specific examples and information literacy instruction to show students how each service supports their assignments and research. Second, the lower rating of the catalogue warrants follow-up through user interviews, usability testing and search logs; linking catalogue records directly to full text is one option to evaluate. Third, libraries should combine satisfaction surveys with usage analytics, because satisfaction alone can mask uneven use. These are recommendations for further evaluation rather than interventions tested in this study.

Limitations

The study has several limitations. It was conducted in a single university library, and its findings apply only to the 132 respondents; they should not be generalised to other students, libraries or institutions. Convenience sampling of students who already use PTAR's digital services means that the results may overstate use and satisfaction and cannot be generalised to all UiTM students or to non-users. The design is cross-sectional and correlational, so it cannot establish causation. Both perceived usefulness and use were self-reported, and use was measured with agreement statements rather than system logs, so common-method effects are possible (Podsakoff et al., 2003); log analysis would provide a more objective measure of use (Jamali et al., 2005). Perceived ease of use, the second core TAM belief, was not measured, and the very high reliability coefficients merit examination of item redundancy and discriminant validity (Fornell & Larcker, 1981). Future research could recruit non-users through probability sampling, combine survey data with usage logs and test the full TAM model with structural equation modelling (Hair et al., 2019).

CONCLUSION

Among 132 surveyed students who reported using PTAR's digital services, agreement with use statements varied across services, with off-campus access and full-text resources rated above the online catalogue, and satisfaction ratings were favourable. Perceived usefulness was strongly and positively associated with self-reported use (ρ = .645, 95% CI [.52, .74], $p < .001$), consistent with TAM. These findings offer a focused, TAM-informed account of one academic library setting rather than causal evidence or a representative estimate for all UiTM students. For practice, they suggest that libraries should assess use alongside satisfaction and communicate the academic value of individual services; for research, they point to triangulating survey responses with service-use logs and investigating barriers to catalogue use.

Declarations

Ethical Approval

This study received ethical approval from the Universiti Teknologi MARA Negeri Sembilan Branch Research Ethics Committee (approval code REC/1414/2025). Participation was voluntary, informed consent was obtained from all respondents, and responses were kept confidential.

Conflict of Interest

The authors declare no conflict of interest.

Data Availability

The survey data are not publicly available because respondents were assured that their responses would be kept confidential and used only for this study.

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