Integrating Technology by Malaysian Polytechnic Students in Utilizing Institutional Repositories: A Continuous Study Employing the UTAUT Framework

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Abstract
This paper is to report the progress of the research which aims to determine the acceptance of Malaysian polytechnic students towards Institutional Repository for learning. User acceptance of a new technology or innovation is carried out to assess the level of user acceptance and response and has been adopted user acceptance theories such as Unified Theory and Use of Technology (UTAUT) and added attitudes as an external variables. This study hold significant important for the visibility and sustainability of the Institutional Repository platform for the long term. However, the study of technology acceptance at the Institutional Repository in Malaysian polytechnics seems to still lack research data related to user acceptance for the Institutional Repository platform to ensure that this service is implemented effectively to assist library users. Objective of this study is to examine user

acceptance towards Institutional Repository platform for facilitating the learning process among Malaysian polytechnics students. This quantitative empirical study will conducted at four Malaysia polytechnic in Malaysia which is used propulsive sampling technique which is Politeknik Sultan Abdul Aziz Shah, Politeknik Kuching Sarawak, Politeknik Seberang Perai and Politeknik Kota Bharu. The three constructs of the UTAUT model are used as direct determinants of behavior intention and added with attitudes as external variables as moderators. Data analysis will use SPSS for descriptive and Smart PLS SEM for structural equation modelling. Next, there are needs of the user's acceptance study towards Institutional Repository platform since it has never implemented. The benefits of technology adoption will reflect students' perceptions of its adoption and the stakeholders who should be responsible for planning, managing and promoting digital libraries for the benefit of students

Introduction

Institutional Repository was conceptualized by (Crow, 2002) as a means to promote openness in sharing data, information, and research findings. The development of a platform that will be available to all stakeholders will enable the administration and dissemination process to be significantly simplified. Since then, the Institutional Repository has evolved and become a platform of preference for higher education institutions looking to boost their reputations, visibility, and learning opportunities (Baro & Nwabueze-Echedom, 2023). Institutional Repository has become not only facilitating collecting, capturing and preserving the university's intellectual output but also promoting the university's research output (Singeh & Abdullah, 2010) and (Imoro & Saurombe, 2023). In the case of Malaysian Polytechnic, the Institutional Repository has made digital library services increasingly essential to support learning activities.

Similarly, Malaysian universities and other higher education institutions aim to manage and facilitate access to research or scholarly information effectively through the use of the Institutional Repository. By consolidating the university collection under one platform, the Institutional Repository enables the transformation of the university library in Malaysia into a digital repository, representing a significant stride forward.

In the meantime, technology innovation will flourish when consumers embrace the distinctive features that offer practical utility. The management of an organization needs users' reviews or responses to evaluate the success of any project, such as information technology (ICT) services. To keep utilizing technology, the user's experience is critical in the continued adoption of technology; otherwise, it loses value (Samaradiwakara G D M & Gunawardena C G, 2014). Additionally, Ding et al. (2019) found that some students expressed dissatisfaction with the system initiated by the educational institutions.

According to (2011), user acceptance is the acceptability of an information technology system to assist users with tasks. When an organization proposes a technological breakthrough to enhance something, assessing how users will respond and whether they'll embrace the technology is crucial. Users play a pivotal role in the success of any organizational policy. Nevertheless, other individuals or users thought the system was excellent. In addition to being a complete form of technology, such as mobile applications to access institutional

repository-based digital learning, it allows students much freedom to study whenever it suits them without worrying about their schedules (Nguyen et al., 2023). This advantage has contributed to the widespread popularity of digital learning.

Malaysian Polytechnic started to implement the Institutional Repository around 2010. However, the development has only commenced at Politeknik Kuching Sarawak (PKS), Politeknik Sultan Salahuddin Abdul Aziz Shah (PSA), Politeknik Seberang Perai (PSP) and Politeknik Kota Bharu (PKB) to date. Meanwhile, other polytechnics have yet to initiate the development of their institutional Repository.

Implementing an Institutional Repository in Malaysian polytechnics is essential for enhancing digital services and the management, distribution, and utilization of digital resources (Milan et al., 2014). The UTAUT study will assist management in identifying areas that need improvement to boost adoption and acceptability among polytechnic students. This is consistent with the belief that management will be able to recognize the shortcomings of digital services in educational institutions if the technological adoption towards digital libraries increases (Ammarukleart, 2017; Moorthy et al., 2018; Owusu-Ansah et al., 2018 ; (Liu et al., 2020).

However, feedback obtained through the librarian indicates that user acceptance of the Institutional Repository is still less than satisfactory. Considering the results of this study would enable the polytechnic education system to improve the digital information services provided to library users. Therefore, a study will be conducted on students' acceptance of the Institutional Repository. Since the students are the primary users of the Institutional Repository platform, their acceptance is critical to its long-term viability.

This study addressed some of the questions by investigating the relationship between adapted variables from the Unified Theory of Acceptance and Use of Technology (UTAUT), which is Performance Expectancy, Effort Expectancy, Social Influence, Attitude, and Behaviour Intention towards Institutional Repository among Malaysian polytechnic students. The researchers focus on the elements that influence or prevent students from using the Institutional Repository, which is critical to examine the acceptances and experiences of the students. Sometimes, libraries lead the way in adopting new technologies and keeping up with emerging trends. However, However, the effectiveness of these initiatives depends on users' readiness to accept such innovation.

Users' acceptance is significant since the Institutional Repository's implementation will be successful or unsuccessful depending on how well students use it during their study. Library as a service provider succeeds when library users respond favourably. A negative response must be addressed immediately, and management must emphasize it (Sharif & Raza, 2017). To facilitate students, reference activities for which this study is appropriate it is required to improve digital services and the content of materials from repository institutions (VanDerSchaaf et al., 2021).

Throughout the review, the previous researchers conducted various research topics. Nevertheless, that dealt with attitude as a moderator towards users' acceptance less explored. Such a study is required since, compared to universities, the Polytechnic still has Institutional Repository gaps to fill. As a result, this study contributes to a better understanding of the Institutional Repository and UTAUT's expanded theory of knowledge. UTAUT enhanced individual acceptance research by integrating four moderators to account for dynamic effects, such as gender, age, voluntariness, and experience, and uniting the theoretical viewpoints prevalent in the literature (Venkatesh et al., 2003). Technical Vocational Education and Training (TVET) policymakers are motivated by the industry's

growing need for graduates of TVET programmes. It is constantly conscious of improving educational standards and providing the best training materials (Prikshat et al., 2020; Khalid et al., 2019). Preliminary findings from this study will help improve the delivery of high-quality information services, particularly Institutional Repositories.

Purpose of The Study

The study aims to provide significant insights into the unique influence of attitude on decision-making processes connected to the adoption of the institutional Repository in the context of Malaysian Polytechnic students. With the distinct socio-cultural framework of Malaysian education, it is essential to comprehend how attitudes as external variables influence independent variables and behavior intentions to customize tactics related to the student's interests. Understanding how Malaysian polytechnic students perceive the Institutional Repository as a learning materials database regarding technological acceptability Singh (2016) is important. It is challenging for stakeholders to recognize and solve issues that could aid in their learning using the Institutional Repository because more data on Malaysian polytechnic students needs to be collected.

Throughout this study, the researcher explores how attitude influences numerous variables within the UTAUT framework. The study examines explicitly how attitude affects variables, including behavior intention, performance expectancy, effort expectancy, and social influence. In this context, attitude is acknowledged as an essential external element that has the power to affect the direction and strength of the interactions between various variables.

The researchers noted the literature review from previous studies about UTAUT were carried out in universities, such as the studies by (Akanni & Adetimirin, 2017; Dulle & Minishi-Majanja, 2011; Alajmi, 2018; Zainab et al., 2018). One feature the researcher has discovered when performing this study is the need for additional technology acceptance research, such as UTAUT, for Malaysian polytechnic institutions.

In the context of Malaysian polytechnics, a student's intention to use the institutional repository platform is more potent if they have a positive attitude toward it and believe it is beneficial, useful, and meets their needs (Ukwoma & Dike, 2017). However, if a student has a negative attitude, there can be less of a correlation between user acceptance factors and their intention to use the institutional Repository.

Research Questions and Objective of The Study

The objective was created to make it easier for the researcher to comprehend the direction of this investigation. As a result, this study aimed to analyze the factors concerning polytechnic students' intention to use institutional repositories for their learning process when enrolled in polytechnics. For this study, the objectives are as follows:

1. To examine the relationship between Performance Expectancy and Behavior Intention, use Institutional Repository for learning.
   This objective is to investigate how students' intentions to use the Institutional Repository for learning are influenced by their expectations of its performance. It entails examining the relationship between the readiness of individuals to integrate this digital resource into their daily educational activities and their perception of its benefits. The findings can shed light on the variables affecting the integration of technology in learning environments.

2. To examine the relationship between Effort Expectancy Influence and Behavior Intention to use an Institutional Repository for learning.
   This objective aims to investigate how users' intentions to use institutional repositories for learning are influenced by their perceptions of the ease or difficulty of accessing them. This objective also will explore the relationship between users' willingness to integrate the Repository into their teaching activities and their perception of the effort involved.

3. To examine the relationship between Social Influence and Behavior Intention to use an Institutional Repository for learning.

   This objective can provide a brief on the social factors impacting the use of institutional repositories for educational purposes. Also, to investigate how students' intents to use an Institutional Repository for learning are influenced by social factors, such as peer pressure, lecturers' influence, or other social relationships. This objective will explore the relationship between users' willingness to integrate the Repository into their teaching practices and social dynamics.

4. To determine the moderating effect of attitude between performance expectancy, effort expectancy, social influence, and behavior intention to use an institutional repository for learning.
   Exploring how students' attitudes affect the relationship between user's acceptance variables (Performance Expectancy, Effort Expectancy, and Social Influence) and their intent to use an Institutional Repository for learning is the focus of the objective. A more specific knowledge of how students' general views impact the influence of different elements on their ability to embrace and use the Repository in an educational setting is made possible by this objective.

These research questions explain the acceptance of library users towards the system that has been developed. The question arises when there is a perception that the system developed helps facilitate learning or other issues, such as the Institutional Repository at the Polytechnic, do not help to facilitate learning. Therefore, the research questions that have been identified are:

1. Does Performance Expectancy have a significant relationship with Behavior Intention to use an Institutional Repository for Learning?
   This research question that forecasts the anticipated relationship between Behavior Intention and Performance Expectation. For instance, this study may propose a positive relationship between the two, i.e., that behavior intention rises as performance expectation does.

2. Does Effort Expectancy have a significant relationship with Behavior Intention to use Institutional Repository for learning?
   In using an institutional repository for learning, this question examines the possible relationship or correlation between Effort Expectancy and Behavior Intention.

3. Does Social Influence have a significant relationship with Behavior Intention to use Institutional Repository for Learning?
   This research question proposes an investigation to determine whether Social Influence and Behavior Intention are correlated or associated in a measurably meaningful way while using an institutional repository for learning. By analyzing the statistical data, determine whether social influence and Behavior Intention to use the Institutional Repository are significantly correlated.

4. What is the moderating effect of Attitude on the relationship between Performance Expectancy, Effort Expectancy, Social Influence and Behavior Intention to use an Institutional Repository for learning?

    According to the moderating effect of attitude in this situation, people's perceptions of the Institutional Repository may impact the strength of the relationships between Performance Expectancy, Effort Expectancy, and Social Influence and their intention to use the Institutional Repository for learning. This might entail determining the circumstances in which, depending on students' attitudes, the effects of performance expectation, effort expectation, and social influence on behavior intention are greater or lower.

Literature Review

The study by Kohnke et al., (2014) modified UTAUT to better understand how patients and doctors behaved when using the Henry Ford e-Home Health Care Telehealth technology. Role, anxiety, and self-efficacy were also employed as moderators to examine the link between UTAUT and behaviour intention. Meanwhile, the perpetrator's mindset, which can be either positive or bad and can be impacted by various factors, is tied to their attitude (Kohnke et al., 2014) and (Okoroma, 2018). Meanwhile, the perpetrator's mindset, which can be either positive or bad and be impacted by various factors, is tied to their attitude.

Furthermore, some research revealed that an educator's mindset allows them to use educational technology. Knowledge, abilities, and conviction in the value of technology in education will be helpful (Tarman, 2019). As a predictor, attitude also seems less significant than other factors like perceived behavioural control (Chang et al., 2009). The researcher proposed that attitudes towards technology exhibit inconsistency, whether substantial or not, based on the literature review.

University students that utilize the Institutional Repository for assignments, reviewed articles, and research have a positive opinion of the Institutional Repository (Adedimeji & Adekoya, 2019). Nevertheless, Madu & Haruna (2019) note that attitude is a crucial element in the intention of new library users and plays a pivotal role in the commitment of current users to the library. Also, Lwoga & Questier (2014) discovered in another study that open-access usage can be impacted by attitude, culture, and influence. The mindset was thought to influence open access usage behaviour in this study. On the other hand, it was hypothesized that both participants' intention and their utilization of open access were influenced by culture and other factors.

Performance Expectancy is strongly correlated with the capabilities of a new system, access to sufficient information pertinent to their intellectual activity, and improved search skills. Finding much information in many fields will boost one's professional, academic, or problem-solving efficacy (Akanni & Adetimirin, 2017; Onaolapo & Oyewole, 2018). This indicates that Performance Expectancy will boost users' confidence in a new system by helping them solve problems related to daily tasks, academic classes, and work-related tasks.

In the meantime, according to Alajmi and Alotaibi (2020)behaviour intentionon aneffort expectationsns majorly impact how often library patrons use their services. For instance, research by faculty professors discovered that Effort Expectancy is simple to grasp and has a relationship with Behavior Intention regarding the use of digital libraries.

Academicians intend to utilize new technology for teaching, such as interactive whiteboards, because it is user-friendly and easy to use, according to (Tosuntaş et al., 2015). They discovered that effort expectancy has a favourable effect on behaviour. It is also

comparable to (Oye et al., 2014) discovery that their effort expectations positively influence academicians' use of information, communication and technology at work.

Influence from peers or co-workers can persuade someone to use, adapt, and accept technology. Previous studies have demonstrated that using digital libraries is connected to peer influence, as stated by (Yu & Huang, 2020) and (Liu et al., 2020). Maintaining current library usage might also entice new users to adopt the services offered by digital libraries. This is a beneficial effect made possible by elements like social influence. Research on undergraduates has also revealed a link between friends' influence and students' intention to use a digital library (Moorthy et al., 2018). These students discovered that using digital libraries improved their efficiency and learning.

The researchers also discovered during the literature evaluation that the UTAUT study requires further research on attitude as a moderator. The researcher believed this variable strengthened the foundation of the UTAUT theory in this study. Also, several previous research studies covered technology adoption as a mediator (Gibson et al., 2008; Kim et al., 2009; Bervell & Umar, 2018; Ofori, 2019).

The literature review results indicate that a more comprehensive study of Malaysian Polytechnic's Institutional Repository is needed. Malaysian polytechnic students have yet to be the subject of prior research. These students represent a large proportion of Malaysia's TVET population. There will be 36 campuses and about 90,000 students enrolled at Malaysia's polytechnics by 2021. The government's priority is TVET development, which will get a total budget of approximately RM5–RM6 billion for 2020 and 2021.

Research Methodology

This study uses a quantitative method, and its overall framework provides its overall framework. The next step is to construct an instrument to analyze or track respondents' behaviours or attitudes after variables in research questions or hypotheses have been defined. The researcher then uses an organizational model for the research questions or hypotheses and a data-gathering technique to collect data from the instrument used to assess whether or not the theories were supported by the data (Bahari, 2012).

By evaluating pertinent literature to find concerns or problems that could be discovered, the research initially determined the research interest of this study. The outcomes of the initial procedure will result in a research challenge, which will then be developed to pinpoint research needs further. The hypotheses will be implemented by choosing a theoretical framework appropriate for the study's theme. The researcher then decides on a research paradigm that creates a suitable research design and will present a comprehensive image linked to this investigation.

As determined by the researchers, the study's sampling criteria are Malaysian polytechnic students enrolled in four specific polytechnics—Politeknik Kuching Sarawak, Politeknik Shah Alam, Politeknik Kota Bharu, and Politeknik Seberang Perai—who are in active status and pursuing certificates, diplomas, or degrees. The four polytechnics have taken the initiative to implement Institutional Repository to enable digital library services. A sample of 160 to 300 valid observations is optimal for multivariate statistical analysis of PSL-SEM data (Memon et al., 2020).

The researcher developed a questionnaires after choosing a research design for the measuring phase. After that, a pilot study will be carried out to gauge the reliability and validity of the survey's questions. The instrument will be delivered following approval to collect the data required for the study. A questionnaire was created to collect data following

the chosen research design. Google Forms will serve as the medium for this questionnaire. The Likert scale is a measurement tool used to gather data. Using SPSS, the data will be descriptively examined, and SmartPLS will be utilized to collect multivariate data. Google Drive will make data available to enable virtual observation. Researchers will engage with Malaysian polytechnic librarians to share questionnaire links with respondents with the approval of the polytechnic authorities because the Institutional Repository was developed in four polytechnics, the study's primary focus.

Data analysis is completely discussed in the subsequent stage. Several types of analysis are used to collect the required data concurrently with impartial research. The thesis' final chapter will cover the process of interpretation and discussion. The influence or contribution of the findings to managerial and scholarly perspectives will be the main topic of debate. The researcher will make actionable recommendations for conclusions and subsequent studies.

Conclusion

Institutional Repository is an important digital platform for Malaysian polytechnics. Not only does it function as a scholar platform, but it also acts as a centre for polytechnic digital information. Quality digital reference sources for learning are essential for students to assist in completing assignments. However, user acceptance will determine its success in the future.

Numerous studies have employed variables like Performance Expectation, Effort Expectation, and Social Influence, including utilizing digital libraries and systems. A more extensive study is necessary to understand the opinions or perceptions of polytechnic students regarding the Institutional Repository completely, which was implemented a few years back. This would support the development of digital information management strategies in Malaysian polytechnic libraries, enabling them to serve better students who utilize their services.

To increase student's engagement, Institutional Repository marketing and promotion are essential. The library is more important in improving, managing, and marketing the Institutional Repository. Institutional Repository may only be considered a successful innovation if users recognize them as a hub for numerous relevant learning resources.

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