

**THE IMPACT OF UNLICENSED RESEARCH
SOFTWARE CONSUMER USAGE
BEHAVIOUR ON PERCEIVED UNIVERSITY
REPUTATION AMONG POSTGRADUATE
STUDENTS IN MALAYSIA**

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**ASIA e UNIVERSITY
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USAGE BEHAVIOUR ON PERCEIVED UNIVERSITY REPUTATION
AMONG POSTGRADUATE STUDENTS IN MALAYSIA

ARMAN BIN AHMAD

A Thesis Submitted to Asia e University in
Fulfilment of the Requirements for the
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ABSTRACT

Unlicensed research software usage among students is a global crisis against higher learning institutions. The phenomenon has affected the perception, expectation, and trust of stakeholders and societies toward the university's branding and reputation simultaneously and could tarnish the long-term sustainability and credibility of the higher learning institutions. The purpose of this study is to explore, expose and deploy the significant antecedents (factors) that cause the usage of unlicensed research software among post-graduate students in Malaysia and simultaneously measure the perceived reputational impacts of their deviant behaviour towards their institutions using the Unified Theory of Acceptance and Use of Technology (UTAUT) with an extension of perceived university reputation as the dependent variable (post-antecedent of behaviour). Multi-sampling through a combination of Purposive and Snowball sampling was used to gather all 420 respondents' primary data through an online questionnaire. The PLS-SEM were used for the analysis of the information collected. To wind up, the students' economic conditions, performance expectancy, and facilitating condition, have a positive relationship with the intention to use unlicensed research software among the postgraduate (PhD and Doctoral) students in Malaysian universities. All exogenous are also fully mediated by the intention to use the unlicensed research software and the usage behaviour could mediate the relationship between the intention to use and facilitating condition towards the perceived reputation of the university. The usage behaviour also has a positive relationship with the perceived university reputation suggesting that individual choices around unlicensed research software use could have broader implications for institutional credibility. Finally, the tested model shows a range of predictive performances across different constructs, with some exhibiting high predictive relevance, suggesting the model's strength in forecasting these particular outcomes. Understanding this unlicensed research software usage intention and behaviour as well as its impacts on the university's reputation issue helps Malaysia to develop an ethical, better and higher quality education system to nurture better citizens for the future. The national aspiration to make Malaysia the excellent education hub in Southeast Asia and a highly reputable education region will be accomplished when the issue of unlicensed research software usage is curbed and controlled through a comprehensive understanding of its antecedents and consequences. It could also help local universities inculcate a more ethical education environment and culture to produce more ethical postgraduate students who will lead the future of the country, society, and the national economy to be more prosperous.

Keywords: Unlicensed research software, university reputation, usage behaviour, intention to use, economic condition, performance expectancy, facilitating condition, postgraduate students, Malaysia

APPROVAL

This is to certify that this thesis conforms to acceptable standards of scholarly presentation and is fully adequate, in quality and scope, for the fulfilment of the requirements for the Doctor of Business Administration

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DECLARATION

I hereby declare that the thesis submitted in fulfilment of the DBA degree is my own work and that all contributions from any other persons or sources are properly and duly cited. I further declare that the material has not been submitted either in whole or in part, for a degree at this or any other university. In making this declaration, I understand and acknowledge any breaches in this declaration constitute academic misconduct, which may result in my expulsion from the programme and/or exclusion from the award of the degree.

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A handwritten signature in black ink, appearing to read 'Arman Bin Ahmad', with a long horizontal stroke extending to the left.

Signature of Candidate:

Date: 25 April 2024

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LIST OF ABBREVIATION

3MC	Multinational, Multiregional, and Multicultural Contexts
ABN	Atlantic, Bay of Bengal, and Northeast Asian Regions
ACM	Association for Computing Machinery
AeU	Asia e University
AHFE	Applied Human Factors and Ergonomics Conference
AMOS	Analysis of Moment Structures
AMS	Academy of Marketing Science
APEC	Asia-Pacific Economic Cooperation
ASEAN	Association of Southeast Asian Nations
ASIA	Geographic Region of Asia
AVE	Average Variance Extracted
BMC	BioMed Central
BOINC	Berkeley Open Infrastructure for Network Computing
BRSBITE	Bank Rakyat School of Business, Innovation, Technology and Entrepreneurship, Universiti Tun Abdul Razak
BSA	Business Research Software Alliance
CB-SEM	Covariance-Based SEM
CD	Compact Disc
CD-R	Compact Disc Recordable
CDF	Cumulative Distribution Function
CEIC	China Economic Information Center
CHISQ	Chi-Square distribution in Mahalanobis Distance Analysis
CIP	Critical Infrastructure Protection

CISIS	Conference on Complex, Intelligent and Research Software Intensive Systems
CMU	Carnegie Mellon University
COVID-19	Coronavirus Disease 2019
CRM	Customer Relationship Management
CSV	Comma-Separated Values
CYSE	Cybersecurity
DBA	Doctor of Business Administration
DV	Dependent Variable
E-WOM	Electronic Word of Mouth
EC	Economic Condition
EIS	Education Information System
EPF	Employee Provident Fund
ESORICS	European Symposium on Research in Computer Security
EUIPO	European Union Intellectual Property Office
EuroMed	Euro-Mediterranean Partnership (Barcelona Process 1995)
eWOM	Electronic Word of Mouth
FC	Facilitating Condition
FHSU	Fort Hays State University
FOMCA	Federation of Malaysian Consumers Associations
FUOYE	Federal University Oye-Ekiti
GDP	Gross Domestic Product
HCC9	The 9 th Human Choice and Computers
HCT	Higher College of Technology
HEI	Higher Education Institution

HEIMS	Hospital Electronic Information Management Systems
HORA	Human-Computer Interaction, Optimization and Robotic Applications
HTMT	Heterotrait-Monotrait
IBM	International Business Machines Corporation
ICT	Information and Communication Technology
ICTSD	International Centre for Trade and Sustainable Development
IDC	International Data Corporation
IFA	Interaction Effect Analysis
IFIP	International Federation for Information Processing
IMF	International Monetary Fund
INTERPOL	International Criminal Police Organization
IoP	Internet of People
IoT	Internet of Things
IP	Intellectual Property
IPR	Intellectual Property Rights
IPT	Institut Pengajian Tinggi (Institute of Higher Learning)
ISSN	International Standard Serial Number
IT	Information Technology
ITA	Intelligent Travel Assistant
IU	Intention to Use
IV	Independent Variable
JMP	Johns Hopkins University Mail Preferences (Visualization Software)
JPT	Jabatan Pendidikan Tinggi (Department of Higher Education)

LHQ	Language History Questionnaire
LJ	Yale Law Journal
LMS	Learning Management Systems
MAE	Mean Absolute Error
MAH_1	Mahalanobis Distance "1" to distinguish it from other sets of variables
MALL	Mobile-Assisted Language Learning
MAPE	Mean Absolute Percentage Error
MARA	Majlis Amanah Rakyat (People Trust Council)
MATLAB	MATrix LABoratory
MBA	Master of Business Administration
MCL	Mobile Cloud Learning
MCMC	Malaysian Communications and Multimedia Commission
MCO	Movement Control Order
MDTCA	Ministry of Domestic Trade and Consumer Affairs
MILA	MILA University (Formally known as Manipal International University, Malaysia)
MIPR	Multimedia Information Processing and Retrieval
MIS	Management Information Systems (Research Journal)
MOE	Ministry of Education
MOHE	Ministry of Higher Education Malaysia
MPLPU	Majlis Pengerusi Lembaga Pengarah Universiti Awam (Council of the Chairman of the Board of Directors of Public Universities in Malaysia)
MQA	Malaysia Qualification Agency

MV	Multivariate
NBER	National Bureau of Economic Research
NCH	Nagarro Competence Hub
NST	News Straits Times
NUS	National University of Singapore
OECD	Organization for Economic Co-operation and Development
OLP	Online Learning Platform
PACIS	Pacific Asia Conference on Information Systems
PC	Personal Computer
PE	Performance Expectancy
PETRONAS	Petroleum Nasional Berhad
PhD	Doctor of Philosophy
PLS	Partial Least Squares
PLS-SEM	Partial Least Squares - Structural Equation Modelling
PMAH_1	Probability Value of MAH_1
QS	Quacquarelli Symonds
RePEc	Research Papers in Economics
RM	Ringgit Malaysia
RMSE	Root Mean Square Error
SACCOS	Savings and Credit Cooperative Societies
SAGE	Systematic Analysis of Governance in Education
SAP	Systems, Applications, and Products Data Processing Software
SARS-Covid-2	Severe Acute Respiratory Syndrome Coronavirus 2
SAS	Statistical Analysis System Software

SAW	Salallahu'alaihiwassalam
SD	Standard Deviation
SEGI	Skills and Education Group University in Malaysia
SEM	Structural Equation Modeling
SGD10	Sustainable Development Goal 10
SIIA	Software and Information Industry Association
SISKEUDES	Sistem Keuangan Desa (Village Fund System)
Smart-PLS	Smart Partial Least Squares
SmartPLS-3	Smart Partial Least Squares Version 3
SME	Small and Medium-sized Enterprises
SPSS	Statistical Package for Social Science
SSRN	Social Science Research Network
STATA	Statistics and Data Research Software
TAM	Theory of Acceptance Model
TPB	Theory of Planned Behavior
TRA	Theory of Reasoned Action
TRGS	Tun Razak Graduate School
UB	Usage Behaviour
UCSI	UCSI University of Malaysia
UI	Usage Intention
UiTM	Universiti Teknologi MARA
UK	United Kingdom
UMK	Universiti Malaysia Kelantan
UniKL	Universiti Kuala Lumpur
UNITI	Uniti College in Malaysia

UR	Perceived University Reputation
USA	United States of America
URSBURI	Unlicensed Research Software Behavioural University Reputational Impact
USD	United States Dollar
USM	Universiti Sains Malaysia
UTAR	Universiti Tunku Abdul Rahman
UTAUT	Unified Theory of Acceptance and Use of Technology
UTAUT2	Unified Theory of Acceptance and Use of Technology Version 2
UUM	Universiti Utara Malaysia (Northern University of Malaysia)
VIF	Variance Inflation Factor
VOA	Voice of Academia
VS	Versus
WCC	World Computer Congress
WIPO	World Intellectual Property Organization
WOM	Word of Mouth
WSEAS	World Scientific and Engineering Academy and Society
XIMB	Xavier Institute of Management, Bhubaneswar

CHAPTER 1

INTRODUCTION

1.0 Chapter Overview

This chapter explains the background of the research, and consecutively, this is succeeded by the problem statement, which is vividly elucidated to provide an extensive understanding of the study. This is followed by the research questions, objectives of the research, its scopes, and the significance of the research in pursuit of establishing enlightenment of its importance to the body of knowledge and practitioners. Apart from the above, the chapter encapsulates the facets that can complement and contribute more to the collection of former studies spearheaded in the discipline of behaviour towards unlicensed research software usage and its impacts on the university's reputation.

1.1 Background of the Study

The organization's sustainability depends on its brand and reputation (Chikada et al., 2017). In marketing, the perception of customers toward the organization's branding is essential for better sales and profit, developing consumers' trust and loyalty, and simultaneously strengthening the relationship between the organization and the stakeholders. The sustainability of an organization, including educational institutions, is closely linked to its reputation, which is shaped by stakeholder perceptions and the organization's actual performance. This section will specifically address how using unlicensed research software by academia and postgraduate students in universities can impact this delicate balance of reputation.

Reputation is also crucial for an organization because it measures the difference between stakeholders' expectations and the organization's performance (Daddi et al.,

2019). Past literature identified that an organization's reputation is influenced by its people (Wæraas & Dahle, 2020). Furthermore, Hetze (2016) claimed that risk to reputation occurs when the organization fails to meet the expectations of a specific stakeholder group. In service sectors such as education, an organization's reputation depends much on the perception of parents and society towards the credibility level of those educational institutions (Berndt & Hollebeek, 2019).

In higher education, an organization's reputation depends on the expectations and perceptions of stakeholders and the public towards the universities or Higher Education Institutions (Kalafatis et al., 2016; Miotto et al., 2020; Rehan et al., 2021). Their expectation towards those institutions is high because the institutions produce future leaders and highly educated citizens who will facilitate the development of society and the country (Chaudhry et al., 2017; Berndt & Hollebeek, 2019). The reputation of universities depends a lot on their students' and employees' (academician and support staff) behaviours (Wilson & Elliot, 2016; Chaudhry et al., 2017; Berndt & Hollebeek, 2019).

The reputation of universities is particularly sensitive to the behaviours and actions of its constituents, including students and staff. It contributes to 30 per cent of the overall ranking indicator in the Quacquarelli Symonds (QS) evaluation and it became an important component to measure universities' position and ranks in the world (QS Quacquarelli Symonds, 2023). Thus, all universities are protecting their reputation to maintain or improve the ranking of their institutions. Mechanisms and strategies have been implemented to avoid any effort that could tarnish or destroy the reputation or image which has hardly developed (Peterson, 2019).

In the past, the issues of universities' organizational reputation destruction were mostly associated with the case of deviant behaviours in academia (Khadijah et al.,