

RGC Ref. No.: UGC/FDS12(16)/B01/17 _____ (please insert ref. above)
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**RESEARCH GRANTS COUNCIL
COMPETITIVE RESEARCH FUNDING SCHEMES FOR
THE LOCAL SELF-FINANCING DEGREE SECTOR**

FACULTY DEVELOPMENT SCHEME (FDS)

Completion Report
(for completed projects only)

<p><u>Submission Deadlines:</u></p> <ol style="list-style-type: none"> 1. Auditor's report with unspent balance, if any: within six months of the approved project completion date. 2. Completion report: within 12 months of the approved project completion date.
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Part A: The Project and Investigator(s)

1. Project Title

A study of examining cognitive determinants and conative behaviors of users in gaming apps

2. Investigator(s) and Academic Department(s) / Unit(s) Involved

Research Team	Name / Post	Unit / Department / Institution
Principal Investigator	Dr. TANG, Kit Yee Ailie/ Assistant Professor	Lee Shau Kee School of Business and Administration, The Open University of Hong Kong
Co-Investigator(s)	N.A.	
Others		

3. Project Duration

	Original	Revised	Date of RGC / Institution Approval (must be quoted)
Project Start Date	1 Jan 2018		
Project Completion Date	31 Dec 2019		
Duration (in month)	24 months		
Deadline for Submission of Completion Report	31 Dec 2020		

Part B: The Final Report

5. Project Objectives

5.1 Objectives as per original application

1. *Construct and validate the measurement scale for cognitive determinants (social influence, perceived enjoyment, sense of achievement) and conative behaviors (intention to continue playing and WOM) of gaming app users*
2. *Propose and empirically test the best-fit intervening mediation model of cognitive determinants and conative behaviors of gaming app users*
3. *Identify and prioritize the critical success factors of gaming app business that are essential for leveraging profit and market share*
4. *Provide managerial and policy implications for developing creative and innovative industry by offering insights of developing gaming app businesses in Hong Kong*

5.2 Revised objectives

Date of approval from the RGC: N.A.

Reasons for the change: N.A.

5.3 Realisation of the objectives

(Maximum 1 page; please state how and to what extent the project objectives have been achieved; give reasons for under-achievements and outline attempts to overcome problems, if any)

All project objectives have been achieved satisfactorily.

Objective 1 - Construct and validate the measurement scale for cognitive determinants (social influence, perceived enjoyment, sense of achievement) and conative behaviors (intention to continue playing and WOM) of gaming app users

We first conducted a comprehensive literature review to identify the key dimensions of each construct. Then our study collected empirical data from our respondents. A number of procedures were followed to check the validity of the measurement items including: the test of corrected item-total correlation (CITC), confirmatory factor analyses (CFA), Cronbach's alpha value, composite construct reliability, average variance extracted (AVE), and maximum shared variance (MSV). The measurement model fit indices showed that our measurement scale is valid.

Objective 2 - Propose and empirically test the best-fit intervening mediation model of cognitive determinants and conative behaviors of gaming app users

We tested the model using structural equation modeling (SEM) using AMOS 22.0. To further determine which of the competing models was best, the chi-square difference test was also performed. Different models with different additional paths were tested to check which yielded the best fit.

Objective 3- Identify and prioritize the critical success factors of gaming app business that are essential for leveraging profit and market share:

Several key significant paths were identified in the findings which revealed the determinants of several desired outcomes of the gaming app business. These paths highlighted the critical success factors that gaming app companies should pay attention to. The total number of players using a game app illustrated the profit capacity because the larger the player population, the more potential customers who would contribute to the profit. While word of mouth (WOM) is essential to increase player population, keeping current players is also of paramount importance. Our study revealed that sense of achievement was a key mediator among the paths of perceived enjoyment, intention to continue playing, and WOM.

Objective 4 - Provide managerial and policy implications for developing creative and innovative industry by offering insights of developing gaming app businesses in Hong Kong

Based on our findings, we provided several managerial and policy implications for gaming app businesses. End consumers are always the key in a creative and innovative industry; therefore, policy shall always be implemented from their perspectives. In the mobile app industry, it is of paramount importance to understand the “process” rather than concentrating on the antecedents and consequences only because players are considered as the co-producers of the process.

In sum, our study successfully achieved the four intended objectives providing both academic and managerial implications to the field.

5.4 Summary of objectives addressed to date

Objectives <i>(as per 5.1/5.2 above)</i>	Addressed <i>(please tick)</i>	Percentage Achieved <i>(please estimate)</i>
1. Construct and validate the measurement scale for cognitive determinants (social influence, perceived enjoyment, sense of achievement) and conative behaviors (intention to continue playing and WOM) of gaming app users	✓	100%
2. Propose and empirically test the best-fit intervening mediation model of cognitive determinants and conative behaviors of gaming app users	✓	100%
3. Identify and prioritize the critical success factors of gaming app business that are essential for leveraging profit and market share	✓	100%
4. Provide managerial and policy implications for developing creative and innovative industry by offering insights of developing gaming app businesses in Hong Kong	✓	100%

6. Research Outcome

6.1 Major findings and research outcome (Maximum 1 page; please make reference to Part C where necessary)

This study examined cognitive determinants (social influence, perceived enjoyment, sense of achievement) and conative behaviors (intention to continue playing and WOM). The proposed model was grounded on self-determination theory and goal frame theory based on the dual mediation hypotheses model. Through structural equation modelling, the empirical findings supported the model illustrating the intervening mediation between the constructs, which implies that when players use gaming apps, social influence and sense of achievement are critical factors in determining whether they will recommend and share the game with others.

Past literature suggested extrinsic motivation did not necessarily undermine intrinsic motivation but enhanced it (Vansteenkiste, Lens and Deci 2006). However, little research has been done to provide empirical evidence identifying what factors and how they may affect the underlying relationship. This research confirmed the notion that extrinsic motivation affected intrinsic value. Additionally, we identified sense of achievement as a full mediator between social influence and perceived enjoyment in the gaming app context. It advocates extrinsic social influence will turn to intrinsic perceived enjoyment only when sense of achievement has been acquired.

Sense of achievement was also salient in determining whether players will continue playing, which further leads to WOM. Sharing intention and purchase intention were often the endogenous variables in the studies of advertising and communication effect (Huang et al. 2013). Our empirical findings demonstrated intention to continue playing was positively related to WOM.

In sum, our research has developed an intervening mediation model that is applicable to the gaming app context. This study should lay a foundation and reference for future scholars who investigate gaming apps or other types of apps such as branded or functional apps.

6.2 Potential for further development of the research and the proposed course of action (*Maximum half a page*)

The findings of this study should help researchers understand mobile apps from a wider perspective. Based on the context and scope classification of our findings, future studies can develop concepts and models with different types of target users for different purposes.

Our empirical findings demonstrated intention to continue playing was positively related to WOM. Future development of the research may consider examining the paths of purchase intention and sharing intention in cognitive and behavioral studies, especially in mobile app and web contexts because they are certainly the desired outcomes of all digital marketers.

Future research may also follow our model to study the factors affecting the intention of continue using and spreading WOM in other categories of apps such as branded apps and functional apps. This research also serves as a methodological guide for conducting longitudinal studies and how to measure the actual behavioral outcomes of app users.

7. Layman's Summary

(*Describe in layman's language the nature, significance and value of the research project, in no more than 200 words*)

App games have become an increasingly lucrative business nowadays. How to keep players and encourage them to spread knowledge of their app via WOM is a constant concern. In this regard, our study revealed that sense of achievement was a threefold indicator for perceived enjoyment, intention to continue playing, and WOM. Gaming app companies should thus attach great importance to enhance the achievement perceived by players such as highlighting the levels that players have attained to make their achievement even more explicit. Game apps developers should endeavor to help players “show-off”, thereby satisfying their need of recognition. This is an important message to all gaming app companies because our findings suggest that even though players may not intrinsically enjoy the game when they first start playing it, players can become more interested in the game through building their sense of achievement.

Academically, this research validated the measurement scale for several key cognitive determinants and conative behaviors. It also illustrated the methodology in conducting longitudinal studies on measuring and empirically testing the behavioral outcomes of app users.

In sum, this study should lay a foundation and reference for future scholars and practitioners who investigate gaming apps or other types of apps.

Part C: Research Output**8. Peer-Reviewed Journal Publication(s) Arising Directly From This Research Project**

(Please attach a copy of the publication and/or the letter of acceptance if not yet submitted in the previous progress report(s). All listed publications must acknowledge RGC's funding support by quoting the specific grant reference.)

The Latest Status of Publications				Author(s) (denote the corresponding author with an asterisk*)	Title and Journal / Book (with the volume, pages and other necessary publishing details specified)	Submitted to RGC (indicate the year ending of the relevant progress report)	Attached to this Report (Yes or No)	Acknowledged the Support of RGC (Yes or No)	Accessible from the Institutional Repository (Yes or No)
Year of Publication	Year of Acceptance (For paper accepted but not yet published)	Under Review	Under Preparation (optional)						
2019				Ailie K.T.Tang* (PI of this project)	A systematic literature review and analysis on mobile apps in m-commerce: Implications for future research. <i>Electronic Commerce Research and Applications</i> , Volume 37, September–October 2019, 100885 <i>Journal Impact Factor 2019: 3.824</i> <i>SCImago Journal Rank (SJR): 1.243</i>	No	Yes	Yes	Yes
		Under Review		Ailie K.T.Tang* (PI of this project)	An intervening mediation model for examining intention to continue playing and WOM in the game apps	No	No	Yes	Yes

9. Recognized International Conference(s) In Which Paper(s) Related To This Research Project Was / Were Delivered

(Please attach a copy of each conference abstract)

Month / Year / Place	Title	Conference Name	Submitted to RGC <i>(indicate the year ending of the relevant progress report)</i>	Attached to this Report <i>(Yes or No)</i>	Acknowledged the Support of RGC <i>(Yes or No)</i>	Accessible from the Institutional Repository <i>(Yes or No)</i>
April/ 2019/ Nagoya	Personality traits of app users and their effects on engagement in mobile gaming apps: conceptualization and scale development	International Conference on Internet Studies	No	Yes	Yes	Yes

10. Whether Research Experience And New Knowledge Has Been Transferred / Has Contributed To Teaching And Learning

(Please elaborate)

The research experience and findings from this study enhanced teaching and learning particularly when consumer behavior in the digital context was discussed in class.

Since mobile app games are common among the younger generations, the knowledge and findings from this research helps students grasp the key concepts of consumer behavior in e-commerce more easily by using practical examples. Students got the insights that using mobile apps is more than just promotion. Mobile app itself can be a profitable business model that can nurture prospects for future entrepreneurs.

11. Student(s) Trained

(Please attach a copy of the title page of the thesis)

Name	Degree Registered for	Date of Registration	Date of Thesis Submission / Graduation
N.A	N.A	N.A	N.A

12. Other Impact

(e.g. award of patents or prizes, collaboration with other research institutions, technology transfer, teaching enhancement, etc.)

This study acts as a key and fundamental base for future research in mobile app and consumer behavior in e-commerce. It also enhances teaching through practical and up-to-date examples in the mobile app industry.

13. Statistics on Research Outputs

	Peer-reviewed Journal Publications	Conference Papers	Scholarly Books, Monographs and Chapters	Patents Awarded	Other Research Outputs (please specify)	
No. of outputs arising directly from this research project	1 published 1 under review	1			Type	No.

14. Public Access Of Completion Report

(Please specify the information, if any, that cannot be provided for public access and give the reasons.)

Information that Cannot Be Provided for Public Access	Reasons
N.A	N.A