International Journal of Recent Technology and Engineering (IJRTE)
ISSN: 2277-3878 (Online), Volume-8 Issue-4, November 2019

Technology Acceptance Model to Judge Performance of Travel Booking Apps in India using Grounded Theory

Komal Chopra

Abstract*: The objective of research is to develop a technology acceptance model in order to judge performance of travel booking apps using grounded theory approach. The variables of the model are then tested using quantitative data. Initially qualitative data was collected through structured interviews and it was subjected to three levels of coding, i.e. open coding, axial coding and selective coding which is called the grounded theory approach. The concepts generated from coding were then integrated into a model. The research is useful for travel aggregators in order to enhance consumer experience in using travel apps. The important contribution to the body of knowledge is development of the model using grounded theory approach which has not been done in any previous research.

***Keywords*:travel apps, grounded theory, performance, technology acceptance model**

I. INTRODUCTION

Travel apps are smartphone apps that are used for travel and hotel bookings [15]. India and China are seen as the fastest growing economies and hence the demand for travel in these two countries has increased significantly [40]. India is also seen as a country of low cost medical tourism for global travelers [5]. Usage of mobile app has become common in India [6]. The high penetration of smartphone apps has led to increase usage of mobile apps for travel bookings [18]. This has increase the need to judge performance of the apps in order to enhance consumer experience and hence usage. Studies on travel apps for hotel and travel booking has shown that most studies have used quantitative approach which is a deductive approach [15] [8]. Adopting an inductive approach of study will help to strengthen the external validity [37]. There is enough published literature on consumer acceptance of mobile app technology explained through 'Technology Acceptance Models' (TAM 1 and TAM 2) [39] and Theory of Planned Behaviour (TPB) [1]. The key components of TAM are perceived ease of use, perceived usefulness and perceived risk which have an impact on user intention and satisfaction [39]. Most of the published literature on TAM and TPB has used quantitative methodology for research [16]. A meta-analysis of TAM highlighted several limitations of quantitative research [13]. Hence, an alternative approach would be to develop the theory using qualitative approach.Grounded theory approach has often been used to develop theories using qualitative data [17]. The grounded theory follows an inductive approach to development of theory [10]. The grounded theory approach helps in better understand of the theoretical concepts since they are developed from concepts grounded in the data [10]. The grounded theory approach has never been used to judge performance of smartphone application. The current study proposes to use the grounded theory approach in order to develop TAM model for judging performance of travel apps. Research question How can TAM theory be developed and tested to judge performance of travel apps using grounded theory and quantitative approach?

Manuscript published on November 30, 2019.
* Correspondence Author
Dr Komal Chopra*, Symbiosis Institute of Management Studies, Symbiosis International (Deemed University), Pune,

II. REVIEW OF LITERATURE

Over the years, the travel and tourism industry in India has been a major driver for using smartphone applications [24]. However, there is scant literature on usage of smartphone applications for travel. Most of the literature in the Indian context is in the area of usage of apps for shopping and banking applications. Consumers use technology to search online for products because of higher convenience but buy offline because of better interaction and experience in a store [3]. The reverse is also true where consumers search for products in offline stores but buy them online because of better deals [3]. In the area of banking, the researcher [12] highlighted the issues and challenges faced by consumers in adoption of mobile banking apps. The study highlights the potential security issues involved in adoption. Since travel business is a flourishing industry in India, there is a dire need to study adoption of travel apps.

Technology acceptance model has been widely researched upon with respect to different industries. Researchers [26] have applied the model to understand the usage of information technology. Researcher [30] applied the model to understand consumer acceptance of e-commerce. Researchers [20] applied the model to understand acceptance of physician usage of telemedicine technology. TAM has been integrated with other models to understand consumer acceptance of technology.

TAM integrated with Theory of Planned Behaviour has shown that technology acts as an enabler for shopping [3].

According to researchers [30], perceived ease of use and perceived usefulness are the functional motives while trust and risk are the experiential motives in technology usage. The researchers [39] in their study indicated that functional and experiential motives differ on the basis of gender. Their study shows that women perceive usefulness of technology higher than men while the reverse is true for perceived ease of use. Another study has revealed that age has a moderating effect in case of technology adoption with respect to trust and ease of use [39]. The older users have a greater disposition for ease of use while young users have a greater disposition towards trust [3]. The literature on TAM highlights the major gap of not adopting a qualitative approach to studying the model. This has realized the need to develop TAM using grounded theory approach.

The concept of grounded theory was pioneered by specialists [17] where the objective was to generate theories using from concepts grounded in the data. The work on grounded theory was further carried out by Corbin and Strauss [10]. The grounded theory has been used in a variety of applications related to mobile apps in recent years. Joorabchi, et al [23] used the grounded theory approach to study mobile apps used in advertising. Leung et al [27] adopted grounded theory methodology to study mobile apps in healthcare. Chung [9] studied the used of Starbucks branded mobile app using this approach. Since grounded theory is a well-accepted methodology in qualitative research, the current study also proposes to use this methodology for research.

III. RESEARCH METHODOLOGY

Step 1 : Grounded theory methodology

Grounded theory methodology [17] was used to collect the data. Focus group interviews were conducted to collect the data since the purpose was to gather insights on consumer acceptance of travel apps and evaluating its performance. The respondents were migrant students studying in a private international university in Pune, India. The respondents selected travelled regularly for study and leisure by making bookings through travel apps. The sample size was 28 respondents since theoretical saturation [11] reached early. In grounded theory methodology, data analysis begins immediately after the first respondent is interviewed using constant comparison method. The interview is broken into pieces of information to create properties and concepts through a three step coding process, i.e. open coding, axial coding and selective coding. In open coding, the pieces of information is analyzed to create properties. These properties are then categorized into sub categories based on similarity of properties. This is called axial coding. The final step is selective coding where the sub categories are clubbed into core categories which are related to the concepts of TAM model. The concepts are then integrated into a theoretical model using memo writing. The following questions were asked to respondents:

(1) What are the major reasons for using travel apps?
(2) Describe your experience with usage of travel apps
(3) What is the outcome of usage of travel apps?
(4) What are the challenges in usage of mobile apps?

Step 2 : Quantitative based method

The variables identified in grounded theory approach were then subjected to quantitative based data testing by framing a questionnaire and collecting data from 231 respondents. Kruskal Wallis test and Kendall's was used to used to compare difference in responses based on age group and reliability test was done using Kendall's coefficient of concordance.

IV . DATA ANALYSIS

Data analysis using a three step coding process is shown in

Table no 1
Interview statements and their analysis

Interviews	Open coding	Axial coding	Selective coding
I 1 The travel apps are very informative	Informative	Useful	Perceived usefulness
I 2 Apps provide multiple options which makes it confusing	Multiple options	Useful	Perceived usefulness
I 3 The experience with travel app is satisfactory	satisfaction	Positive intention	Usage intention
I 4 It's a one stop solution for all needs	One stop solution	convenience	Perceived ease of use
I 5 Some travel apps provide the best deals	Best deals	useful	Perceived usefulness

I 6 There is always a risk in booking since we have seen only destination photos	Risk of booking	Psychological risk	Perceived risk
I 7 Travel apps provided the updated information I8 I am very satisfied to use the apps I 9 Reputation of the travel portal is very important I 10 Reviews and ratings give me assurance of quality I 11 Customer reviews are very important I 12 The customer care staff is very helpful	Updated information Satisfaction Reputation Reputation reviews helpful staff	Updated information Usage intention image image image positive intention	Perceived usefulness Usage intention Perceived image Perceived image Perceived image Usage intention
I 13 ➢ Various options help to create a positive attitude towards the app I 14 ➢ There is always a difference in what the apps project and what we actually experience	Positive attitude Expectation vs experience	Intention to use Perceived usefulness	Usage intention Perceived usefulness
I 15 ➢ Combo offers are a big motivation	Combo offer	External motivation	Intention to use
I 16 ➢ The travel apps should open faster	Faster opening	Ease of opening	Perceived ease of use
I 17 ➢ Travel apps have useful AI devices	Usefulness AI devices	Ease of using AI	Perceived ease of use
I 18 ➢ Travel apps understand your search history	Understanding search history	Customization	Perceived usefulness
I 19 ➢ Ticket bookings are smooth and hassle free	Smooth and hassle free	convenience	Perceived ease of use
I 20 ➢ There are data privacy concerns	Data privacy concerns	Risk	Perceived risk
I 21 ➢ The apps can include augmented reality	Augmented reality	Real time experience	Perceived usefulness
I 22 ➢ Some apps are not mobile friendly	Mobile friendliness	Ease of use	Perceived ease of use

I 23 ➢ The experience with app was awesome	Awesome experience	Good perception	Usage intention
I 24 ➢ Travel apps provide good visuals	Good visuals	Visual appeal	Perceived image
I 25 ➢ It is very convenient to use the apps	convenience	Ease of use	Perceived ease of use
I 26 ➢ Even a common man can use the app	User friendly	Ease of use	Perceived ease of use
I27 ➢ App has to be user friendly	User friendly	Ease of use	Perceived ease of use
I28 ➢ Variety of information is most desirable	Variety of information	Desirable information	Perceived usefulness

IV. PREPARE YOUR PAPER BEFORE STYLING

v RESULTS

Table 2

Perceived ease of use	*Respondents (I)*
convenience	I4, I19
ease of opening	I16
ease of using AI	I17
user friendly	I26, I27

Inference: Based on three levels of coding, the concept of perceived ease of use emerged which has properties of convenience, ease of opening, ease of using AI and user friendliness. Hence the travel app must be easy to use.

Table 3

Perceived usefulness	*Respondents*
Informative	I1
Multiple options	I2
Best deals	I5
Updated information	I7
Experience	I14
Customization	I18
Desirable information	I28

Inference: The concept of perceived usefulness emerged with maximum properties that were perceived useful by consumers. These are the app being informative, having multiple travel options, provide updated and desirable information, combo deals and should be able to provide a customization leading to a good experience.

Table 4

Perceived risk	*Respondents*
Psychological risk	I6
Data privacy	I20

Inference: The perceived risk emerged as a result of data privacy concerns and apprehensions about booking the right options in travel apps.

Table 5

Perceived image	*Respondents*
Reputation	I9, I10
Reviews	I11
Visual appeal	I24

Inference: Reputation, good reviews and a good visual appeal add to the consumer perceived image of a travel app.

Table 6

Usage intention	*Respondents*
Satisfaction	I3
Helpful staff	I12
Positive attitude	I13

Inference: Satisfaction, helpful staff and positive attitude will lead to using the travel app again and again by the consumer.

Model development based on grounded theory methodology

The concepts were integrated into a theoretical model. The major factors affecting experience or satisfaction (usage intention) were perceived risk, perceived ease of use perceived usefulness and perceived image.

Figure 1

Table 7 Mean rank of attributes

	Pune
Perceived ease of use	3.07 (5)
Perceived usefulness	3.27 (4)
Perceived Risk	4.15 (3)
Usage intention	4.34 (1)
Perceived image	4.21 (2)

Inference: The results clearly indicate usage intention and image being the most driving factor for a mobile travel app

Null Hypothesis: There is no significant difference between the responses of age groups (19-21), (22-25), (above 25 yrs)

Table 8 Kruskal Wallis test

	Perceived ease of use	Perceived usefulness	trust	risk	satisfaction
Chi-Square	1.573	.354	.478	1.186	.487
Df	2	2	2	2	2
Asymp. Sig.	.593	.996	.943	.695	.931

Inference

The results show that there is no significant difference between the responses of based on age group at significant value of $p < 0.05$. Hence, the null hypothesis is accepted.

Table 9

Reliability test

Test Statistics

N	5
Kendall's W[a]	.853
Chi-Square	29.867
Df	7
Asymp. Sig.	.000

a. Kendall's Coefficient of Concordance

Inference

The Kendall's W is 85.3 % which indicates significant agreement between the respondents of different age groups

V CONCLUSION, LIMITATIONS, MANAGERIAL IMPLICATIONS

The objective of the study was to develop a TAM model for travel app using grounded theory approach. This objective was achieved. The model was then tested using quantitative data and the results clearly highlighted that perceived image and usage intention are major predictors. The grounded theory approach has also shown that perceived usefulness has the maximum properties. The major limitation of the study is that data has been taken from a single city and the target respondents are youngsters. Variation in respondent demographics or collecting data from more cities may alter the results. The scope of the study is limited to Indian travel apps only. The study has strong implications for practitioners in terms of making improvement in the current mobile travel apps for better revenue generation. The need to focus of perceived image and usage intention. The major contribution to the study is building a theory model using grounded theory approach which has not been done earlier.

REFERENCES

1. Ajzen, I. (1991), "The theory of planned behavior", Organizational Behavior and Human Decision Processes, 50(2), 179-211.
2. Alnawas, I., & Aburub, F. (2016). The effect of benefits generated from interacting with branded mobile apps on consumer satisfaction and purchase intentions. Journal of Retailing and Consumer Services, 31, 313-322.
3. Arora, S., & Sahney, S. (2018). Antecedents to consumers' showrooming behaviour: an integrated TAM-TPB framework. Journal of Consumer Marketing, 35(4), 438-450.
4. Ayanso, A., Lertwachara, K. and Thongpapanl, N. (2010), "Technology-enabled retail services and online sales performance", Journal of Computer Information Systems, 50(3), 102-111.
5. Banerjee, S., Nath, S. S., Dey, N., & Eto, H. (2018). Global medical tourism: A review. In Medical Tourism: Breakthroughs in Research and Practice (pp. 1-19). IGI Global.
6. Bhat, I. H., & Singh, S. (2018). Examining the Effect of Demonetization on Grocery Retailing in India. Asian Journal of Management, 9(3), 1208-1212.
7. Blazquez, M. (2014), "Fashion shopping in multichannel retail: The role of technology in enhancing the customer experience", International Journal of Electronic Commerce, 18(4), 97-116.
8. Chen, M. M., Murphy, H. C., & Knecht, S. (2016). An importance performance analysis of smartphone applications for hotel chains. Journal of hospitality and tourism management, 29, 69-79.
9. Chung, H. (2015). Consumer brand engagement by virtue of using Star bucks s Branded Mobile App based on grounded theory methodology. International Journal of Asia Digital Art and Design Association, 19(4), 91-97.
10. Corbin, J. M. and Strauss, A. (1990), "Grounded theory research: Procedures, canons, and evaluative criteria", Qualitative sociology, 13(1), 3-21.
11. Corbin, J. M. (1998). The Corbin and Strauss chronic illness trajectory model: an update. Research and Theory for Nursing Practice, 12(1), 33.
12. Devadevan, V. "Mobile Banking in India-Issues & Challenges." International Journal of Emerging Technology and Advanced Engineering 3, no. 6 (2013): 516-520.
13. Dwivedi, Y. K., Rana, N. P., Chen, H., & Williams, M. D. (2011, September). A Meta-analysis of the Unified Theory of Acceptance and Use of Technology (UTAUT). In IFIP international working conference on governance and sustainability in information systems-managing the transfer and diffusion of it (pp. 155-170). Springer, Berlin, Heidelberg.

14. Efendigil, T., Önüt, S. and Kahraman, C. (2009), "A decision support system for demand forecasting with artificial neural networks and neuro-fuzzy models: A comparative analysis", Expert Systems with Applications, 36(3), 6697-6707.
15. Fang, J., Zhao, Z., Wen, C., & Wang, R. (2017). Design and performance attributes driving mobile travel application engagement. International Journal of Information Management, 37(4), 269-283.
16. Ghazali, E. M., Mutum, D. S., Chong, J. H., & Nguyen, B. (2018). Do consumers want mobile commerce? A closer look at M-shopping and technology adoption in Malaysia. Asia Pacific Journal of Marketing and Logistics, 30(4), 1064-1086.
17. Glaser, B., & Strauss, A. (1967). Grounded theory: The discovery of grounded theory. Sociology the journal of the British sociological association, 12(1), 27-49.
18. Gupta, A., Dogra, N., & George, B. (2018). What determines tourist adoption of smartphone apps? An analysis based on the UTAUT-2 framework. Journal of Hospitality and Tourism Technology, 9(1), 50-64.
19. Hopping, D. (2000), "Technology in retail", Technology in Society, 22(1), 63-74.
20. Hu, P. J., Chau, P. Y., Sheng, O. R. L., & Tam, K. Y. (1999). Examining the technology acceptance model using physician acceptance of telemedicine technology. Journal of management information systems, 16(2), 91-112.
21. Jones, G. and Ledger, J. (1986), "Expert systems in decision support: opportunities for the retailer, Retail and Distribution Management, 14(5), 18-19.
22. Jonsen, K. and Jehn, K. A. (2009), "Using triangulation to validate themes in qualitative studies", Qualitative Research in Organizations and Management: An International Journal, 4(2), 123-150.
23. Joorabchi, M. E., Mesbah, A., & Kruchten, P. (2013, October). Real challenges in mobile app development. In 2013 ACM/IEEE International Symposium on Empirical Software Engineering and Measurement (pp. 15-24). IEEE.
24. Khare, A., & Khare, A. (2010). Travel and tourism industry yet to exploit the Internet fully in India. Journal of Database Marketing & Customer Strategy Management, 17(2), 106-119.
25. King, W. R., & He, J. (2006). A meta-analysis of the technology acceptance model. Information & management, 43(6), 740-755.
26. Legris, P., Ingham, J., & Collerette, P. (2003). Why do people use information technology? A critical review of the technology acceptance model. Information & management, 40(3), 191-204.
27. Leung, R., Hastings, J. F., Keefe, R. H., Brownstein-Evans, C., Chan, K. T., & Mullick, R. (2016). Building mobile apps for underrepresented mental health care consumers: A grounded theory approach. Social work in mental health, 14(6), 625-636.
28. Marshall, B., Cardon, P., Poddar, A. and Fontenot, R. (2013), "Does sample size matter in qualitative research? A review of qualitative interviews in IS research", Journal of Computer Information Systems, vol. 54, no. 1, pp. 11-22.
29. Morganosky, M. A., & Cude, B. J. (2000). Consumer response to online grocery shopping. International Journal of Retail & Distribution Management, 28(1), 17-26.
30. Pavlou, P. A. (2003). Consumer acceptance of electronic commerce: Integrating trust and risk with the technology acceptance model. International journal of electronic commerce, 7(3), 101-134.
31. vPeregrin, T. (2015). Understanding millennial grocery shoppers' behavior and the role of the registered dietitian nutritionist. Journal of the Academy of Nutrition and Dietetics, 115(9), 1380-1381.
32. [Piotrowicz, W. and Cuthbertson, R. (2014), "Introduction to the special issue information technology in retail: Toward omni-channel retailing", International Journal of Electronic Commerce, 18(4), 5-16.
33. Raman, P. (2014). FACTORS INFLUENCING WOMEN CONSUMERS'BUYING BEHAVIOR TOWARDS ONLINE SHOPPING IN INDIA. Journal of Contemporary Management Research, 8(2), 23.
34. Ramus, K., & Asger Nielsen, N. (2005). Online grocery retailing: what do consumers think? Internet research, 15(3), 335-352.
35. Sandelowski, M. (1995), "Sample size in qualitative research", Research in nursing & health, vol. 18, no. 2, pp. 179-183.
36. Shende, P., Mehendarge, S., Chougule, S., Kulkarni, P. and Hatwar, U. (2017), "Innovative ideas to improve shopping mall experience over E-commerce websites using beacon technology and data mining algorithms", Circuit, Power and Computing Technologies (ICCPCT), 2017 International Conference on (pp. 1-5). IEEE.
37. Strauss, A., & Corbin, J. (1994). Grounded theory methodology. Handbook of qualitative research, 17, 273-85.
38. Sun, Z. L., Choi, T. M., Au, K. F. and Yu, Y. (2008), "Sales forecasting using extreme learning machine with applications in fashion retailing", Decision Support Systems, 46(1), 411-419.
39. Venkatesh, V. and Davis, F. D. (2000), "A theoretical extension of the technology acceptance model: Four longitudinal field studies", Management Science, 46(2), 186-204.
40. Wang, K., Zhang, A., & Zhang, Y. (2018). Key determinants of airline pricing and air travel demand in China and India: Policy, ownership, and LCC competition. Transport Policy, 63, 80-89.

AUTHORS PROFILE

Dr Komal Chopra is an Assistant Professor at Symbiosis International (Deemed University, Pune. His qualification is BE, MBA, NET, PhD. He has published research papers in international journals and is on the reviewer and editorial board of ABDC journals.