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A Literature Review of the Partial Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) Model

Keywords: UTAUT2; Unified Theory of Acceptance and Use of Technology 2; literature review; technology acceptance

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Abstract

Theoretical background: Today, people use more systems and devices than ever, no matter the context. These behaviors are most often explained using technology acceptance models, including the unified theory of acceptance and use of technology 2 (UTAUT2), which is a new and prominent technology acceptance theory.

Purpose of the article: The aim of this article is to identify any interpretable trends and draw overall conclusions about the existing UTAUT2 literature, which helps to fill the gap which is lack of such review for UTAUT2 model.

Research methods: Descriptive review analysis of 23 articles based on the partial UTAUT2 model.

Main findings: The UTAUT2 is an efficient theory – the average explained variance of behavioral intention was 62% and for use behavior – 37%. It is highly recommended to use the performance expectancy variable in all research contexts based on the UTAUT2 model. Utilitarian aspects turned out to be more important than hedonic ones for most technology adopters. Commercial organisations should focus on delivering reliable and useful products and underline these features in marketing communication.

Introduction

There have been many changes in the technology acceptance field since the first technology acceptance theory, the diffusion of innovations theory, was proposed in 1962. These changes are reflected by various predictors of technology acceptance included in different models over the years. The summary of these changes is included in Table 1. The chronological graph for the technology acceptance theories is presented in Figure 1.

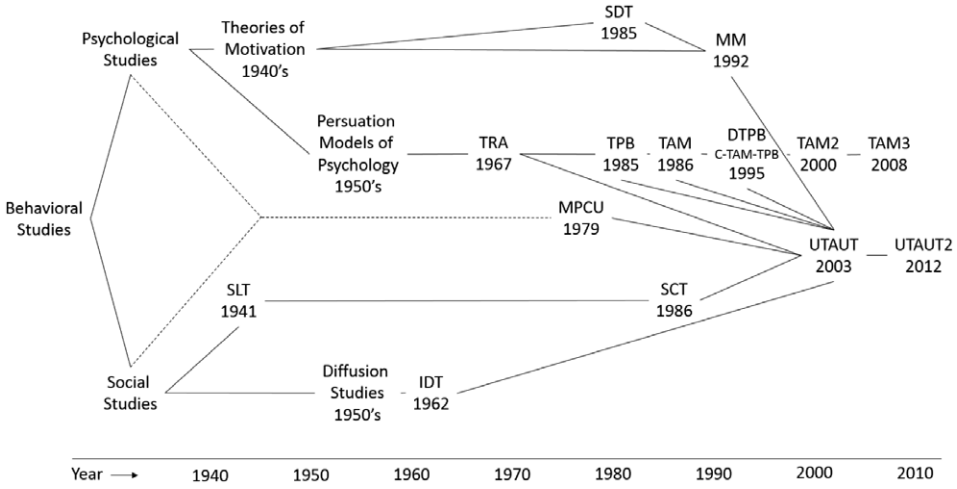

Figure 1. Chronological graph for the technology acceptance theories evolution

Source: Authors' own study based on (Momani & Jamous, 2017).

Table 1. The most important technology acceptance theories 1960 – today

Diffusion of Innovations Theory (IDT) – 1962	
Author: Rogers (1983) – basic theory; Moore and Benbasat (1991) – adjustment to the technology acceptance context	
Predictors of technology adoption:	Relative Advantage, Compatibility, Ease of Use, Trialability, Visibility, Image, Voluntariness, Results Demonstrability
Theory of Reasoned Action (TRA) – 1967	
Author: Fishbein and Ajzen (1975)	
Predictors of technology adoption:	Behavioural Intention, Attitudes Towards Behaviour, Subjective Norms
Model of Personal Computer Use (MPCU) – 1979	
Author: Thompson, Higgins and Howell (1991)	
Predictors of technology adoption:	Job-Fit, Affect Towards Use, Facilitating Conditions, Complexity, Long-Term Consequences, Social Factors
Theory of Planned Behaviour (TPB) – 1985	
Author: Ajzen (1991)	
Predictors of technology adoption:	Behavioural Intention, Attitudes Towards Behaviour, Subjective Norms, Perceived Behavioural Control
Social Cognitive Theory (SCT) – 1986	
Author: Bandura (1986), Compeau and Higgins (1995) – adjustment to the technology acceptance context	
Predictors of technology adoption:	Outcome Expectations – Performance, Outcome Expectations – Personal, Self-Efficacy, Affect, Anxiety
Technology Acceptance Model (TAM) – 1986	
Author: Davis (1986)	
Predictors of technology adoption:	Behavioural Intention, Perceived Usefulness, Perceived Ease of Use
Motivational Model (MM) – 1992	
Author: Davis, Bagozzi and Warshaw (1992)	
Predictors of technology adoption:	Extrinsic Motivation, Intrinsic Motivation
A Combined Theory of Planned Behaviour/Technology Acceptance Model (C-TAM-TPB) – 1995	
Author: Taylor and Todd (1995)	
Predictors of technology adoption:	Behavioural Intention, Attitudes Towards Behaviour, Subjective Norms, Perceived Behavioural Control, Perceived Usefulness, Perceived Ease of Use
Unified Theory of Acceptance and Use of Technology (UTAUT) – 2003	
Author: Venkatesh, Morris, Davis and Davis (2003)	
Predictors of technology adoption:	Behavioural Intention, Performance Expectancy, Effort Expectancy, Social Influence Facilitating Conditions
Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) – 2012	
Author: Venkatesh, Thong and Xu (2012)	
Predictors of technology adoption:	Behavioural Intention, Performance Expectancy, Effort Expectancy, Social Influence Facilitating Conditions, Hedonic Motivation, Price Value, Habit

Source: Authors' own study.

After 2012, no prominent theory (> 500 citations in the Scopus database) in the technology acceptance field was proposed.

Unified theory of acceptance and use of technology 2 (UTAUT2)

The unified theory of acceptance and use of technology 2 (UTAUT2) is one of the newest and the most efficient technology acceptance theories (in the original studies, the explained variance of behavioural intention to use technology was 73% and for technology use behaviour, it was 52%). It is an extension of the unified theory of acceptance and use of technology (UTAUT) (Venkatesh et al., 2003), which was a synthesis of eight of the most important technology acceptance theories: IDT, TRA, MPCU, TPB, SCT, TAM, MM, C-TAM-TPB. UTAUT2 is adjusted to both work and consumer contexts. Behavioural intention and use behaviour in this model are explained by: performance expectancy ("The degree to which the user expects that using the system will help him or her attain gains in job performance"), effort expectancy ("The degree of ease associated with the use of the system"), social influence ("The degree to which an individual perceives that important others believe that he or she should use the new system"), facilitating conditions ("The degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system"), hedonic motivation ("The fun or pleasure derived from using a technology"), price value ("The consumers' cognitive trade-off between the perceived benefits and the monetary cost of behavior") and habit ("The extent to which people tend to perform behaviors automatically because of learning"). The relationships in the model are moderated by three variables: age, gender and experience in technology use. The graphical scheme of the model is presented in Figure 2.

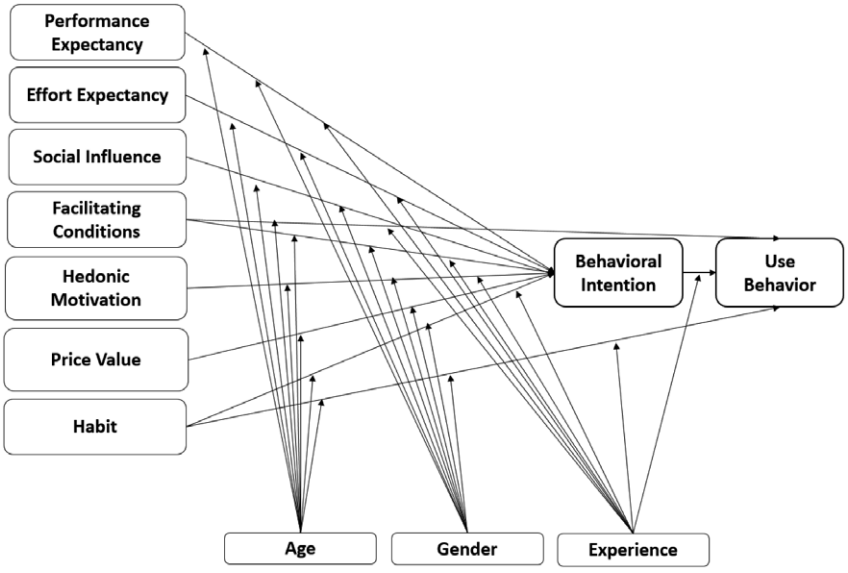

Figure 2. Unified theory of acceptance and use of technology 2

Source: (Venkatesh et al., 2012).

There are three different types of research based on the UTAUT2 model (Venkatesh et al., 2012).

1. Classic UTAUT2 model, with the same exogenous variables that were used in the original study and no additional exogenous variables.

2. Extended UTAUT2 model, with the same exogenous variables that were used in the original study, along with some newly proposed exogenous variables.

3. Partial UTAUT2 model, with a part of the exogenous variables used in the original study.

In this article, only the research based on the partial UTAUT2 model were analysed (scheme presented in Figure 3). Research based on the classic and extended UTAUT2 models will be analysed in another article.

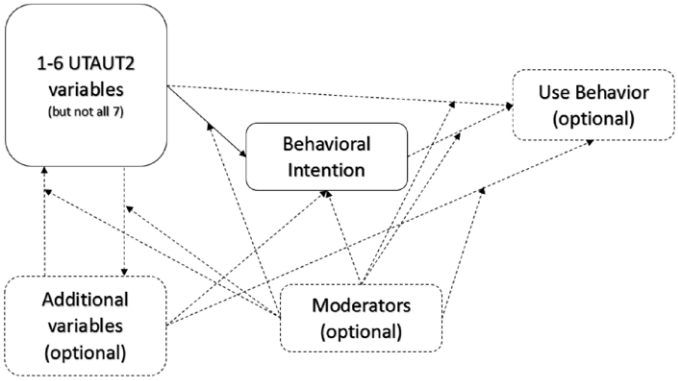

Figure 3. Graphical scheme for research based on the partial UTAUT2 model

Source: Authors' own study.

To date, there is a lack of literature reviews focused on the articles that use the UTAUT2 model and particularly the articles that use the partial UTAUT2 model. The aim of this article is to identify any interpretable trends and draw overall conclusions about the existing UTAUT2 literature, which helps to fill this gap.

Method

There are many methods of reviewing the available literature, such as the descriptive review, scooping review, mapping review, critical review, realist review, aggregative review narrative review and structured literature review (Massaro, Dumay, & Guthrie, 2016). In this literature review, the descriptive review was used as a method of analysis, which is focused on the identification of interpretable patterns and trends. The focus in this method is to "extract from each study certain characteristics of interest, such as publication year, research methods, data collection techniques, and

direction or strength of research outcomes (e.g. positive, negative, or non-significant) in the form of frequency analysis to produce quantitative results" (Pare & Kytsiou, 2017). The largest constraint of this method is that it is limited in predictive and explanatory power; also, it is not as powerful as the meta-analytic review (Sylvester, Tate, & Johnstone, 2013). On the other hand, it helps to "identify any interpretable trends or draw overall conclusions about the merits of existing conceptualizations, propositions, methods or findings" (Pare & Kytsiou, 2017).

To be included in this literature review, the research had to meet the following conditions:

- presence in the Scopus database,
- available for cost-free download for members of the University of Warsaw,
- at least three citations,
- empirical study with presented results,
- published in English,
- based on the partial UTAUT2 model.

Comparison of research based on the partial UTAUT2 model

In this article, we have compared 23 articles that used the partial UTAUT2 model by extracting information such as context, significant and insignificant variables, any moderators used, respondent sample, analysis method used and number of citations. Below is the table with the five most cited studies based on the partial UTAUT2 model. Negative relationships are marked with (-). Endogenous variables are underlined. The parentheses () after the endogenous variable is the R^2 value, if included in the article. The strongest predictor is marked in bold.

Detailed analysis of the above table and results of 18 additional studies not included in the table are in the "Discussion" part of the article.

Discussion

Summary: This article helped to fill the gap, which is a lack of complex literature reviews focused on the UTAUT2 model and particularly on the partial UTAUT2 model. This was done by identifying interpretable trends and drawing overall conclusions about the existing UTAUT2 literature with the descriptive review method.

As technology acceptance research is gaining in popularity, these results can be useful for managers and academics. Business people may improve their product development and communication, while scientists may more easily decide which variables should be used in future theoretical models. An analysis of 23 articles confirmed that UTAUT2 is an efficient theory – the minimum explained variance of behavioural intention was 35% and the maximum value was 94%; for use behaviour,

Table 2. Comparison of the studies based on the partial UTAUT2 model

Author/Year/ Context	Article title	Significant variables	Insignificant variables	Moderators	Respondent sample	Citations/Type/ Analysis Method
(Lian, 2015) Adoption of e-invoice service in Taiwan	"Critical factors for cloud-based e-invoice service adoption in Taiwan: An empirical study"	Perceived Risk (R^2 = 16%): **Security Concerns Regarding E-government** Trust in E-government (R^2 = 9%): **Security Concerns Regarding E-government** Behavioural Intention (R^2 = 66%): **Effort Expectancy**, Social Influence, Trust in E-government, Perceived Risk	Perceived Risk: Trust in E-government Behavioural Intention: Security Concerns Regarding E-government, Performance Expectancy, Facilitating Conditions	Age, Gender – significant for some relationships	251 respondents who understood an e-invoice	49 citations Partial UTAUT2 model PLS-SEM
(Oliveira, Thomas, & Campos, 2016) Adoption of mobile payments in Portugal	"Mobile payment: Understanding the determinants of customer adoption and intention to recommend the technology"	Compatibility (R^2 = 39%): **Innovativeness** Performance Expectancy (R^2 = 55%): **Compatibility**, Effort Expectancy Effort Expectancy (R^2 = 45%): **Compatibility**, Innovativeness Behavioural Intention (R^2 = 72%): **Compatibility**, Performance Expectancy, Social Influence, Perceived Technology Security Use Behaviour (R^2 = 61%): **Behavioural Intention**	Performance Expectancy: Innovativeness Behavioural Intention to Adopt: Effort Expectancy, Facilitating Conditions, Hedonic Motivation, Price Value	No moderators	301 students and alumni from universities in Portugal	47 citations Partial UTAUT2 model PLS-SEM

Author/Year/ Context	Article title	Significant variables	Insignificant variables	Moderators	Respondent sample	Citations/Type/ Analysis Method
(Morosan & DeFranco, 2016) Adoption of NFC mobile payments in U.S. hotels	"It's about time: Revisiting UTAUT2 to examine consumers' intentions to use NFC mobile payments in hotels"	System-related Privacy: **General Privacy**, Perceived Security Behavioural Intention: **Performance Expectancy**, Social Influence, Facilitating Conditions, Hedonic Motivation, Habit, System Related Privacy (-)	Behavioural Intention: Effort Expectancy, General Privacy, Perceived Security	No moderators	794 respondents from general U.S. population that have stayed in a hotel within the 12 months prior to the study and had a smartphone	44 citations Partial UTAUT2 model PLS-SEM
(Pasqual-Miguel, Aguado-Peregrina, & Chaparro-Pelaez, 2015) Adoption of online shopping by Spanish customers	"Influences of gender and product type on online purchasing"	Model contains 2 endogenous constructs – Behavioural Intention and Use Behaviour. Results are presented separately for male and female and for different product types, this number of dimensions and the fact that there are no aggregated results did not allow variable analysis	Results are presented separately for male and female and for different product types, this number of dimensions and the fact that there are no aggregated results did not allow variable analysis	Gender, Product Type – significant for some relationships	817 respondents – students, online shoppers, LinkedIn users	40 citations Partial UTAUT2 model PLS-SEM
(Raman & Don, 2013) Adoption of learning management software	"Preservice teachers' acceptance of learning management software: An application of the UTAUT2 model"	Behavioural Intention (R^2 = 35%): Performance Expectancy, Effort Expectancy, Social Influence, **Facilitating Conditions**, Hedonic Motivation Use Behaviour (R^2 = 30%): Behavioural Intention, **Facilitating Conditions**	Behavioural Intention: Habit Use Behaviour: Habit	No moderators	320 undergraduates students from school of education and modern languages, University Utara Malaysia	38 citations Partial UTAUT2 model PLS-SEM

Source: Authors' own study.

the minimum value was 27% and the maximum value was 57%. These results are higher in comparison to other technology acceptance models. Out of the three types of UTAUT2-based research (partial, classic and extended) mentioned in the previous section of this article, the partial UTAUT2 research is the most popular. This means that not all of the UTAUT2 variables are useful in contexts different from mobile device usage (topic of original study [Venkatesh et al., 2012]). Researchers choose only some constructs from the UTAUT2 model and usually add other exogenous variables that are applicable to the field they are analysing. Among the most important limitations of this literature review was the lack of research from databases outside of Scopus, the lack of paid articles and articles with less citations. In addition, analysed articles are not directly comparable due to different methods and settings.

Context: Four articles accounted for 17% of all articles and were devoted to shopping (e-commerce, m-commerce, and social commerce), which was the most popular topic of research based on the partial UTAUT2 model. As there are predictions of double digits in year to year growth in sales outside of traditional, physical shops, it is expected that this field will gain in popularity. The results are of primary interest to retailers but might also be interesting for consumers. Other popular topics were social media (including social recommender systems and social content, present in three articles [13%]), which was predictable considering the expansion of Facebook, Instagram, Snapchat and other similar media; banking and payments, included in 3 articles (13%), which was directly connected with shopping and of interest to banks, and retailers and can be used to increase sales and government services adoption (such as e-invoice), also with three articles (13%), the results of which are mainly useful for people working in the public sector and can be utilised to improve the quality of the systems produced for citizens by the government. Health-related technologies (mobile apps and websites, accounted for 9% of analysed texts), that should be of interest to the medical environment, and learning (mobile learning/online learning), which is important for Internet tutors were the other topics, with a more than 5% share.

Variables: Variable analysis was done in this paper for 22 out of 23 analysed articles (96%). In one article, the results are presented separately for male and female and for different product types. These number of dimensions and the fact that there are no aggregated results provided by the authors did not allow variable analysis for that particular case. In the UTAUT2 model originally proposed by Venkatesh et al. (2012), two endogenous variables were used – behavioural intention and use behaviour. However, use behaviour is often difficult to measure. That is why only 36% of the analysed articles included the use behaviour variable in the model. This is a limitation of those studies, but simultaneously, according to many researchers (Fishbein & Ajzen, 1975; Davis, 1986), behavioral intention is usually a very good predictor of use behavior (Venkatesh et al., 2003).

Performance expectancy was significant in 89% of the cases (17 out of 19), and was the strongest predictor of behavioural intention in four of 19 cases (21% of ar-

ticles). According to these results, it is highly recommended to use this variable in all research contexts. These results also corroborate that utilitarian aspects are more important than hedonic ones for most technology adopters. Commercial organisations should focus on delivering reliable and useful products, and underline these features in marketing communication.

Effort expectancy was the only variable significant in less than 50% of cases (nine out of 19, 47%). Therefore, this variable should be used in the model only if the technology or product is complicated and hard to master. Business people should not focus on this aspect in advertising campaigns, especially if their target group is younger (under 35 years old).

Social influence was the most popular predictor of behavioural intention among researchers present in 20 out of 22 studies (91%). However, only once was it the strongest predictor of behavioural intention, and in nine cases (45%), it was statistically insignificant. This means that in many cases, users pick a particular technology for their own benefit rather than because their friend, co-workers and family are using the same technology. In a consumer context, the exception are studies devoted to social media usage, and researchers should always consider including the social influence variable in this situation. A similar recommendation is for business people who want to study their social media adoption (e.g. reasons for following the company profile on Facebook by the user).

The facilitating conditions variable was present in 73% of the studies (16 out of 22). It was statistically significant for only 50% of UTAUT2-based models. In one case (6%), it was the most important variable predicting behavioural intention. Scientists should be careful before incorporation of facilitating conditions into the model, as many users of technology do not need manuals or the help of consultants to adopt machines, systems or applications. Compatibility with other solutions should not be overrated. For managers, in some cases, putting too much effort into backwards compatibility or the preparation of "how to" tutorials may not bring the expected results.

Hedonic motivation was significant in 11 out of 17 cases (65%). One time (6%) was the strongest predictor of behavioural intention. This variable should be added to the model, mostly in the consumer context. For example, shopping may be considered a fun way to spend leisure time and technology can play an important part in this process. In work, where efficiency is more important, hedonic motivation will not be significant in most cases. Retailers may use this information and prepare engaging websites for their product or technology, with many videos, quizzes and games.

Price value was the least popular variable from all UTAUT2 original variables among researchers (7 out of 22 cases, 32%). It was never the strongest predictor of behavioural intention and was insignificant in 43% of studies (three times). The explanation of low popularity is that this variable is not applicable for free of charge technologies (e.g. most social media). Moreover, if the price is very low it probably will not have a strong influence on behavioural intention, either. Researchers may consider the price value for the luxury goods, where quality must be adequate to the

price, or if the value is much more important than price, e.g. for the technologies supporting health (Tavares & Oliveira, 2017). Managers can experiment with the influence of price on sales, and consider increasing prices while improving quality, performance and client service simultaneously.

Regarding researchers, 55% (12 out of 22) have utilised habit as an exogenous variable, which was statistically significant for 67% of studies. This may be due to the fact that most people do not like changes and they want to use technology according to their own habits. Before creating the UTAUT2-based model, researchers consider whether a particular technology can be used in a habitual way. This is the case for many different systems or devices such as TVs, computers, websites, etc. The recommendation for businesses is to ensure that the interface of the technology allows repeatable usage, e.g. saving user preferences, keyboard shortcuts, and programmable buttons.

Trust was included in seven articles (32%) and was always significant. In addition, trust was the strongest predictor of behavioural intention four times (57%). Researchers should always consider inclusion of this variable into UTAUT2-based models. Moreover, they can try to incorporate the perceived risk variable and test different relationships between trust and perceived risk, since they can be viewed as independent predictors, or a mediating relationship can occur (Karasiewicz, Kułak, Nowak, & Trojanowski, 2018). Managers in commercial organisations should take care of the safety of their technologies, e.g. for web-based technologies, this can be done with SSL certificates, secure payments from the largest vendors and an anti-hacking policy.

For use behavior, as mentioned before, it was used as an endogenous variable in 36% of the articles (eight times). Behavioural intention was its most important antecedent seven times (88%). This is congruent with results from studies based on the other technology acceptance theories – TRA (Fishbein & Ajzen, 1975), TPB (Ajzen, 1991), and TAM (Davis, 1986), which means that behavioral intention should always be included as a predictor of use behavior. Furthermore, managers who do not have the option to base their decisions on actual behaviors, may do this by analysing the intention of the users and predict their future adoption with a high probability. Other important antecedents of use behavior were facilitating conditions (statistically significant in 4 out of 6 cases, 67%), habit (statistically significant in 3 out of 5 cases, 63%) and price value (statistically significant in 1 out of 1 cases, 100%).

Moderators: Moderating variables were included in only 26% (6 out of 23) of the analysed articles. It is noteworthy that

> (…) groups of respondents are likely to diverge significantly from each other in terms of their beliefs, values or their understanding of different constructs; therefore, the value of path coefficients for each group may be different. Failure to examine the impact of heterogeneity may result in drawing incorrect conclusions and formulating invalid recommendations. (Trojanowski & Kułak, 2017)

Moreover, only 33% (2 out of 6) of the articles with moderators consisted of all three moderating variables from the original UTAUT2 studies. The most popular moderators used were gender (5 out of 6, 83%), age (4 out of 6, 67%) and experience (2 out of 6, 33%). Other moderators that were included in one article each, were: education, product type, habit, social support. Future studies should include all three moderators proposed by Venkatesh et al. (2012), but also additional moderators such as income, education or context-specific moderators. Business people ought to study not only the aggregated results, but also group-by-group comparisons. This way, they will be able to precisely target their customers with tailor-made, adequate information.

References

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, *50*(2). **doi:10.1016/0749-5978(91)90020-T**

Bandura, A. (1986). *Social Foundations of Thought and Action: A Social Cognitive Theory*. Englewood Cliffs: Prentice-Hall Inc.

Compeau, D.R., & Higgins, C.A. (1995). Computer self-efficacy: Development of a measure and initial test. *MIS Quarterly*, *19*(2). **doi:10.2307/249688**

Davis, F. (1986). *A Technology Acceptance Model for Empirically Testing New End-User Information Systems: Theory and Results*. Cambridge: MIT Sloan School of Management (Unpublished Doctoral dissertation).

Davis, F.D., Bagozzi, R.P., & Warshaw, P.R. (1992). Extrinsic and intrinsic motivation to use computers in the workplace. *Journal of Applied Social Psychology*, *22*(14). **doi:10.1111/j.1559-1816.1992.tb00945.x**

Fishbein, M., & Ajzen, I. (1975). *Belief, Attitude, Intention and Behavior: An Introduction to Theory and Research*. Reading: Addison-Wesley.

Karasiewicz, G., Kułak, J., Nowak, J., & Trojanowski, M. (2018). Mobile phone usage in buying process: Extending the UTAUT2 model with trust and perceived risk. *Journal of Euromarketing*, *27*(1–2).

Lian, J.-W. (2015). Critical factors for cloud-based e-invoice service adoption in Taiwan: An empirical study. *International Journal of Information Management*, *35*(1). **doi:10.1016/j.ijinfomgt.2014.10.005**

Massaro, M., Dumay, J., & Guthrie, J. (2016). On the shoulders of giants: Undertaking a structured literature review in accounting. *Accounting, Auditing & Accountability Journal*, *29*(5). **doi:10.1108/AAAJ-01-2015-1939**

Momani, A.M., & Jamous, M.M. (2017). The evolution of technology acceptance theories. *International Journal of Contemporary Computer Research*, *1*(1). **doi:10.4018/IJCBPL.2017040101**

Moore, G.C., & Benbasat, I. (1991). Development of an instrument to measure the perceptions of adopting an information technology innovation. *Information Systems Research*, *2*(3). **doi:10.1287/isre.2.3.192**

Morosan, C., & DeFranco, A. (2016). It's about time: Revisiting UTAUT2 to examine consumers' intentions to use NFC mobile payments in hotels. *International Journal of Hospitality Management*, *53*. **doi:10.1016/j.ijhm.2015.11.003**

Oliveira, T., Thomas, M.B., & Campos, F. (2016). Mobile payment: Understanding the determinants of customer adoption and intention to recommend the technology. *Computers in Human Behavior*, *61*. **doi:10.1016/j.chb.2016.03.030**

Pare, G., & Kytsiou, S. (2017). Methods for literature reviews. In: F. Lau, & C. Kuziemsky (Eds.), *Handbook of eHealth Evaluation: An Evidence-based Approach*. Victoria: University of Victoria.

Pasqual-Miguel, F.J., Aguado-Peregrina, A.F., & Chaparro-Pelaez, J. (2015). Influences of gender and product type on online purchasing. *Journal of Business Research*, *68*(7). **doi:10.1016/j.jbusres.2015.01.050**

Raman, A., & Don, Y. (2013). Preservice teachers' acceptance of learning management software: An application of the UTAUT2 model. *International Education Studies*, *6*(7). **doi:10.5539/ies.v6n7p157**

Rogers, E.M. (1983). *Diffusion of Innovations*. New York: Free Press.

Sylvester, A., Tate, M., & Johnstone, D. (2013). Beyond synthesis: Re-presenting heterogeneous research literature. *Behaviour & Information Technology*, *32*(12). **doi:10.1080/0144929X.2011.624633**

Tavares, J., & Oliveira, T. (2017). Electronic health record portal adoption: A cross country analysis. *BMC Medical Informatics and Decision Making*, *97*(17). **doi:10.1186/s12911-017-0482-9**

Taylor, S., & Todd, P. (1995). Assessing IT usage: The role of prior experience. *MIS Quarterly*, *19*(4). **doi:10.2307/249633**

Thompson, R., Higgins, C., & Howell, J. (1991). Personal computing: Toward a conceptual model of utilization. *MIS Quarterly*, *15*(1). **doi:10.2307/249443**

Trojanowski, M., & Kułak, J. (2017). The impact of moderators and trust on consumer's intention to use a mobile phone for purchases. *Journal of Management and Business Administration. Central Europe*, *25*(2). **doi:10.7206/jmba.ce.2450-7814.197**

Venkatesh, V., Morris, M.G., Davis, G.B., & Davis, F.D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, *27*(3). **doi:10.2307/30036540**

Venkatesh, V., Thong, J.Y., & Xu, X. (2012). Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology. *MIS Quarterly*, *36*(1). **doi:10.2307/41410412**