Why people keep coming back to Facebook: Explaining and predicting continuance participation from an extended theory of planned behaviour perspective

Mutaz M. Al-Debei a,⁎, Enas Al-Lozi b,1, Anastasia Papazafeiropoulou c

a Department of Management Information Systems, The University of Jordan, 11942 Amman, Jordan
b Department of Management Information Systems, Al-Zaytoonah University of Jordan, 11733 Amman, Jordan
c Department of Information Systems and Computing, Brunel University, UB8 3PH, United Kingdom

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This study examines the continuance participation intentions and behaviour on Facebook, as a representative of Social Networking Sites (SNSs), from a social and behavioural perspective. The study extends the Theory of Planned Behaviour (TPB) through the inclusion of perceived value construct and utilizes the extended theory to explain users’ continuance participation intentions and behaviour on Facebook. Despite the recent massive uptake of Facebook, our review of the related-literature revealed that very few studies tackled such technologies from the context of post-adoption as in this research. Using data from surveys of undergraduate and postgraduate students in Jordan (n = 403), the extended theory was tested using statistical analysis methods. The results show that attitude, subjective norm, perceived behavioural control, and perceived value have significant effect on the continuance participation intention of post-adopters. Further, the results show that continuance participation intention and perceived value have significant effect on continuance participation behaviour. However, the results show that perceived behavioural control has no significant effect on continuance participation behaviour of post-adopters. When comparing the extended theory developed in this study with the standard TPB, it was found that the inclusion of the perceived value construct in the extended theory is fruitful; as such an extension explained an additional 11.6% of the variance in continuance participation intention and 4.5% of the variance in continuance participation behaviour over the standard TPB constructs. Consistent with the research on value-driven post-adoption behaviour, these findings suggest that continuance intentions and behaviour of users of Facebook are likely to be greater when they perceive the behaviour to be associated with significant added-value (i.e. benefits outperform sacrifices).

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1. Introduction

Since its introduction, the Internet has enabled entirely new forms of social interaction and activities, thanks to its basic features such as the prevalent usability and access. As the Internet is massively evolving over time, the World Wide Web or otherwise referred to as Web 1.0 has been transformed to the so-called Web 2.0. In fact, Web 2.0 refers to the second generation of the World Wide Web that facilitates information sharing, interoperability, user-centred design and collaboration. The advent of Web 2.0 has led to the development and evolution of Web-based communities, hosted services, and Web applications that work as a mainstream medium for value creation and exchange. Examples of Web 2.0 Websites include social-networking sites (e.g., Facebook and Twitter), and video-sharing sites (e.g., YouTube). Such sites have actually harnessed the power of the audience they are serving as they provide a space for greater collaboration and facilitate the creation and exchange of user-generated content which makes the users themselves, the real owner of the technology. Given that more and more people are joining Web 2.0 Websites, and because some sites fall apart soon after their launch due to their disability in generating enough value elements for users to engage in long-term activities [12], there is an emerging need to understand users’ continuance interaction and participation at a deeper level [56]. Examining the social influences affecting user intentions on whether to continue or not to continue participating in Web 2.0 Websites is becoming a key research issue in the Information Systems (IS) field [13,14]. Indeed and despite the fact that Web 2.0 Websites have existed in some fashion for more than a decade, little scholarly research has empirically addressed the reasons why users choose to remain active and continue participating in Web 2.0 Websites whilst others choose to stop (i.e. post-adoptive behaviour), and what are the influences affecting that decision as a result. Fostering participation in Web 2.0 communities is an issue that continues to present challenges for researchers and practitioners alike. Investigating this matter is deemed significant as sustaining a successful operation of any Web 2.0 Website depends primarily on the continuance usage and engagement of its own users. In this sense, the post-adoption

⁎ Corresponding author. Fax: +962 6 5355 522.
E-mail addresses: m.debei@ju.edu.jo (M.M. Al-Debei), enas.al-lozi@zuj.edu.jo (E. Al-Lozi), Anastasia.Papazafeiropoulou@brunel.ac.uk (A. Papazafeiropoulou).
1 Fax: +962 6 4291432.

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behaviour of Web 2.0 Websites’ users is a key performance indicator and a critical success factor for these sites.

This study aims at examining the importance of the social aspects and characteristics in determining users’ continuance participation intentions and behaviour on Facebook. According to Kim and Malhotra [44], although the IS adoption literature has been vast, there is little systematic effort in examining the IS use over time. The authors suggest four theoretical viewpoints for understanding continued IS use. These are: (1) the processes suggested by the technology acceptance model; (2) sequential updating mechanisms; (3) feedback mechanisms; and (4) repeated behavioural patterns. In this study we also take the view that IS continuance use as a post-adoption phenomenon needs further exploitation and this is our main motivation for this research work.

The context of this study is Facebook use in Jordan. This is because, in Jordan, Facebook is one of the largest and widely adopted Web 2.0 Websites and has witnessed a massive rise in its adoption and use within the last 2 to 3 years. In addition to the recent uptake of Facebook in Jordan which makes it a phenomenon that is worth investigating, our review of the related-literature revealed that very few studies have covered the Middle East area in this context, and more specifically Jordan. This indeed adds another motivation for conducting this research.

To achieve its objectives, this study mainly utilizes the Theory of Planned Behaviour (TPB). The TPB is a well-known model that has been used extensively in predicting human intentions and behaviour based on identifying important predictors. Thus, this theory is considered useful in explaining the complexity of influences in the behavioural decision-making and there is a strong support in the literature demonstrating its efficacy in this context [9]. On the other hand, previous research has also reported that based on the constructs in the standard TPB alone, a large proportion of the variance in intentions and behaviour constructs remains unexplained (e.g., [9]). Retrospectively, inclusions of other constructs in the model to improve its predictive ability have been proposed (e.g., [11,74]).

In order to effectively predict continuance participation in Facebook, this study develops a theoretical framework by extending the theory of planned behaviour, including the addition of perceived value and thereafter tests the validity of the developed framework. Through this extension, we assume that the continuance participation intention behaviour on Facebook might vary depending on users’ perceived value. We also consider that value perception along with its degree of importance is normally resulted from previous direct experiences of users on the site. This postulates that continuance participation intentions of users along with their continuance participation behaviour are also attributed to the perceived value besides the other constructs which are already established within the theory of planned behaviour.

The rest of this paper is structured as follows. In Section 2 the paper discusses the background theory related to this study, reviews relevant literature and presents the proposed hypotheses along with the study model. Following that, the methods of analysis are presented (Section 3). The results of the study are then presented in Section 4. Thereafter, a discussion of the results following data analysis course of action is presented in Section 5. Section 6 is devoted to highlight the implications of the current study to theory and practice. We also highlight the study limitations and link it with future research avenues in the same section. Finally, the study conclusions are summarized and highlighted in Section 7.

2. Literature review and theoretical framework

2.1. Theory of planned behaviour

The theory of planned behaviour is a well-established social-psychological model used to examine and predict human intentions and behaviour in situations where individuals might lack control over their own behaviour [1,3]. Within the core of the theory of planned behaviour lies the central construct, which is human behavioural intentions to perform certain behaviours. Behavioural intentions can be defined as the anticipated outcome that guides planned actions. These behavioural intentions represent what would motivate and influence users to act in certain behaviours. Moreover, the standard model of the theory of planned behaviour postulates three conceptually independent predictors; namely Attitudes, Subjective Norms, and Perceived Behavioural Control. Attitude towards the behaviour refers to the degree to which a person has a favourable or unfavourable evaluation of the performed behaviour [57,72,73]. Subjective Norms refer to the perceived social pressure of the external environment surrounding individuals on whether to perform a behaviour or not, whilst Perceived Behavioural Control (PBC) refers to one’s perceived control of performing the behaviour [57].

Previous studies have embarked upon the theory of planned behaviour from multi-disciplined points of view to predict various behaviours; ranging from psychology (see [20]), sociology (see [43]), management (see [81]), marketing (see [40]), computer science (see [65]), to information systems (see [37]) disciplines. Moreover, several studies also found that the TPB would better help to predict health-related behavioural intention [2] given that TPB has improved the predictability of intention in various health-related fields such as leisure (e.g., [41]), and exercise (e.g., [55]).

In Information Systems, the theory of planned behaviour is heavily utilized and applied. The based theory along with its extensions and modifications with other intention theories is used to study, explain and predict decisions of acceptance, adoption, and use of technology systems and other digital services. Indeed, applications of the theory of planned behaviour in IS cover many research areas such as online grocery buying [32]; expert decision support system use [79]; electronic service acceptance [35]; IT adoption [49,61,76]; IT acceptance [21,78]; and IT use [16,52]. However and despite the fact that TPB received great attention and is still extensively adopted in the prediction of IT usage, the theory has rarely applied in the context of continuance IT usage [35,36], and more specifically within the context of this research; i.e. the intentions for continuance participation and engagement in Facebook as one of the Web 2.0 Websites.

However and although the efficacy of the TPB has been proven in the literature, the theory has been also criticized in regard to its predictive ability. For example, Armitage and Conner [9] and based on a meta-analysis reported that across a broad range of behaviours, the predictors of the standard TPB accounted only for 39% and 27% of the variance in intentions and behaviour constructs respectively. Even Ajzen [3] argued that the TPB is open to the inclusion of additional predictors which are theoretically justified and have the potential to enhance the predictive ability of the theory. Accordingly, numerous studies have extended the TPB and such initiatives have been proven to be fruitful as they indicated a satisfactory increment in the predictive ability and power of the TPB [17,19,73]. For the same reason, the theory of planned behaviour has also been integrated with other competing models in the field of IS such as Technology Acceptance Model (TAM), Expectancy Disconfirmation Theory (EDT), and Diffusion of Innovation theory (DOI) in a decomposed structure by combining constructs. That proved to help in providing a fuller understanding of IT acceptance, adoption, use, and continuance of use. For example, Chau and Hu [22] have integrated TAM and TPB into a model that investigates healthcare professionals’ decisions to accept telemedicine technology. In line with that, in a study by Liao et al. [49], the adoption of virtual banking in an international city has been studied through combining the TPB with the Diffusion of Innovation (DOI) theory.

In this study and in order to predict users’ intentions to continue participating on Facebook, we utilize the three predictors of the theory of planned behaviour (“attitude”, “subjective norms”, and “perceived behavioural control”) and we extend that through the inclusion of a novel predictor labelled as “perceived value”. These constructs are discussed in more detail in Section 2.2. However, the reason for using the TPB in this study is the nature of Facebook as a software system that is mainly looking to cater for its users’ social needs rather than
their professional or educational needs. As such we are interested in people's attitudes and perceived values rather than their experience with using the technology per se (which is the focus of TAM). Similarly, theories such as the Diffusion of Innovation Theory (Dol), IS success and IS continuance models were not used as their focus is the innovation or the technology itself (the Facebook system in our case) by studying their successful or not successful trajectory over time. As our focus is the value the users get out of Facebook, the success or not of the system itself is not in our immediate interest. Finally, the Decomposed Theory of Planned Behaviour (DTPB) was also considered for its predictive power [72]. Nevertheless, as the theory is examining detailed influences coming from designers or managers of the system and the way they affect system use, we concluded that this is not relevant to our study as Facebook is a publicly available online system where the majority of the users never meet the designers or the managers of the system.

2.2. Research model and hypotheses development

Post-adoption behaviour is concerned with the usage of a specific information system after the initial acceptance or adoption. Hence, decisions related to post-adoption are independent of those related to initial acceptance or adoption [44]. In the context of post-adoption, users' prior experiences with a specific information system play a substantial role in the decision-making process related to continuance usage. The post-adoption behaviour has been examined in different contexts within the field of information systems, such as online banking [13], mobile Internet services [33], self-service information systems [62], online services [34], and social networking sites [63].

This study employs an extended theory of planned behaviour to understand the decision-making process of users on whether to continue or not to continue using Facebook as a social networking site (see Fig. 1). The standard theory of planned behaviour postulates that actions are determined by a combination of human behavioural intentions and perceived behavioural control [3]. The standard TPB also asserts that behaviour (in this case, continuance participation behaviour on Facebook) is a direct function of behavioural intention (in this case, continuance participation intention on Facebook), whilst behavioural intention is a direct function of attitude, subjective norms, and perceived behavioural control. However, we extend the standard TPB in this study by incorporating "perceived value" as a fourth predictor of behavioural intentions. We also assume that "perceived value" construct is a predictor of actual behaviour. We postulate that extending the TPB through the inclusion of "perceived value" construct is very significant in this research. This is because the key activity in post-adoption is value creation through continuance use, rather than simply adoption and penetration [84]. Moreover and according to Kim and Malhotra [44], in the context of post-adoption behaviour, users' experience with an information system provides them with new inputs that can be used to re-evaluate the value of particular information system and that users' revaluation of the value affects their decisions in regard to continuance usage. This shows the importance of the information system's overall value from the perspective of users in regard to post-adoption decisions. A discussion of the model's constructs along with the formulated hypotheses is provided in the following sub-sections.

2.2.1. Attitude

Previous studies have shown that attitude positively influences behavioural intentions [5]. Attitude is conceptualized as referring to the degree to which an individual favours or does not favour the behaviour being performed [3]. In other words, this construct refers to the general evaluations of an individual regarding the examined behaviour. In the context of this study, attitude is defined as the overall appraisals of individuals concerning participation on Facebook and their desirability to continue this behaviour. As this research is addressing the post-adoptive behaviour (i.e. continuance participation on Facebook), attitude is mainly related to the direct past experiences of individuals with the target system (i.e. Facebook). Hence, we postulate that direct experience would enable users to receive more information about the site and thus they are assumed to provide more reliable and realistic evaluations [14,26]. Indeed, Bhattacherjee and Premkunar [14] indicated that attitude has a significant influence on intentions to use IT in various time periods. Moreover, Attitude–Behavioural Intentions positive relationship has received a strong empirical support in the literature tackling both pre and post-adoptive

![Fig. 1. The study model.](image-url)
behaviours [3,5,7,2]. For example, Hsu et al. [36] found that attitude of users with direct, first-hand experiences positively influences continuance intentions. Karahana et al. [41] found that attitude has a significant influence on intentions to continue using Windows technology. As such, it is expected in this study that individuals’ favourable attitude towards continuance participation on Facebook to positively influence intentions to continue participating on Facebook.

H1. Attitude of users towards continuance participation on Facebook positively affects continuance participation intentions.

2.2.2. Subjective norms

The subjective norm construct refers to individuals’ perceptions of social pressure from important referents to perform or not to perform the behaviour [3]. Hence, it is concerned with how the behaviour of an individual is influenced by the desire to act according to how important referents think she/he should act or as they act themselves [73]. The underlying assumption is that individuals tend to perform behaviours encouraged and accepted within their circle of influence. Generally speaking, this construct is consistently a weaker predictor of behavioural intentions than attitudes and perceived behavioural control [27,29]. In the context of pre-adoption research, there is a strong evidence that subjective norms positively influence behavioural intentions [3], and this is reasonable as pre-adoption decisions are formed primarily based on indirect experiences and second-hand information. However, in the context of post-adoption research as in this study, empirical evidence suggests that the positive influence of subjective norms on behavioural intentions subsides over time with increased system experience [41,73,77]. The underlying assumption here is that users’ knowledge about the system is vague and ill-formed in pre-adoption stages; hence it is logical for potential users to rely on the opinions of significant others for making decisions related to the use of the system. On the other hand, users’ knowledge about the system is clearer and much more organized in post-adoption stages due to their direct past experience; thus, it is argued that experienced users make decisions related to the continuance usage of the system primarily based on their opinions and expertise. Notwithstanding, Cheung and Lee [23] found that in highly interactive online social networking sites, such as Facebook, in contrast to stand-alone systems, users are more exposed to significant others’ influences as they extensively interact in the SNS and in the real life and thus such influences affect their intentions. In other words, they found that subjective norms of Facebook users positively influence their behavioural intentions. Accordingly, a positive relationship between subjective norms and behavioural intentions to continue participating on Facebook is hypothesized in this study.

H2. Subjective norms of users in relation to continuance participation on Facebook positively affect continuance participation intentions.

2.2.3. Perceived behavioural control

The construct of perceived behavioural control refers to individual’s perception of the amount of control over carrying out the behaviour and it is closely related to the perception on how easy or difficult to perform the behaviour. The idea is that if users do not have adequate control over the behaviour, then there is no much reason to performing it [75]. Interestingly, Aizen [3] assumes that perceived behavioural control reflects to some extent situational influences and past experiences as well as other anticipated hurdles and obstacles (e.g. resources and opportunities available). It is suggested that having control over performing the behaviour is a major determinant influencing behavioural intentions. Indeed, literature has empirically proven the importance of perceived behavioural control in determining behavioural intentions not only in the pre-adoption context, but also in the context of post-adoption [3,73]. For example, Taylor and Todd [73] found that perceived behavioural control has a stronger influence on IT usage intention for experienced users than inexperienced users. Thus, it is expected that Facebook experienced users will be more equipped with the required resources, skills, capabilities, and self-confidence in their abilities to continue participating on Facebook, which would lead to a higher behavioural intentions to continue carrying out the behaviour. Accordingly, a positive relationship is hypothesized between perceived behavioural control and behavioural intentions to continue participating on Facebook.

H3. Perceived behavioural control of users in relation to continuance participation on Facebook positively affects continuance participation intentions.

It is also posited that perceived behavioural control predict actual behaviour when individuals are accurate and positive in assessing their skills in addition to other resources and prerequisites needed to carry out the behaviour [3]. The underlying assumption here is that the higher the self-confidence in the ability to perform the behaviour (i.e. PBC), the higher the likelihood to carry out the behaviour. Moreover, it is also expected that the strength of the relationship between PBC and actual behaviour increases as a function of individuals’ direct past experiences. That is, the more the individual’s direct past experience with the system, the higher the individual’s perceived behavioural control over carrying out the behaviour and the higher the influence to carry out the behaviour. It is suggested that facilitating resources and opportunities available to an individual must to some extent dictate the likelihood of behavioural achievement. Accordingly and since post-adoption perspective is adopted in this research, we expect users to be more accurate and positive in assessing their abilities to continue participating on Facebook due to their direct past experiences with the system, in contrast to potential users. Hence, a positive relationship between perceived behavioural control of users and continuance participation on Facebook is hypothesized.

H4. Perceived behavioural control of users in relation to continuance participation on Facebook positively affects continuance participation behaviour.

2.2.4. Perceived value

Despite the absence of a universal definition for the perceived value construct, the concept can broadly be described as user’s overall assessment of the utility of a product/service based on what is received and what is given ([82]; p.14). This definition can be further viewed from the economic theory of utility, cost–benefit paradigm, and uses and gratifications paradigm. According to economic theory of utility, individuals have limited resources and thus they try to utilize them in achieving the maximum utility or satisfaction. Hence, individuals will not lose their limited resources in something that will not add value to them. The cost–benefit paradigm from behavioural decision theory [39] explains that an individual’s choice, amongst various decision-making strategies is based on a trade-off between the effort, time, and cost required to employ the strategy and the quality or utility of the resulting decision. Uses and Gratifications (U&G) paradigm from mass communications research is another relevant paradigm in this context. Uses and gratifications is a media use paradigm that mainly focuses on individual use and choice of media [42]. The main aim of this paradigm is to explain why individuals choose a particular medium over alternative communication media from psychological needs point of view. The underlying assumption in the U&G paradigm is that individuals are aware of their needs and thus their intentions and behaviours are goal-directed. That is, an individual performs or has the intention to perform a certain behaviour so as to achieve a certain goal related to fulfilling a need (i.e. to capture value). However, the value elements that can be captured by users in the context of SNSs are varied; e.g. social value, hedonic value, epistemic value, gift value, and utilitarian value [8]. By synthesizing and integrating the aforementioned theories or paradigms, we recognized that actions associated with adequate value perception are more likely to be performed by individuals than others.
This study considers that extending the standard theory of planned behaviour by adding perceived value construct is significant. This is mainly because of three reasons. First, the extension is believed to be consistent with the existing predictors of the standard TPB as they all come from social-related thinking, in contrast to technology-related thinking. Second, this new construct seems to complement the existing predictors and thus would enhance the predictive ability and explanatory power of the theory. Third, although the relationship between perceived value and adoption intention has been rarely examined in the literature, there is some empirical support that perceived value positively influences behavioural intentions [69]. For example, Kim et al. [45] found that perceived value positively affects continuance adoption intentions for experienced mobile Internet users in Singapore. Hence, this study extends the standard TPB by adding a new predictor labelled as “Perceived Value” and hypothesized that perceived value positively influences individuals’ behavioural continuance intentions.

H5. Users’ perceived value from continuance participation on Facebook positively affects continuance participation intentions.

In a similar fashion to perceived behavioural control, the construct of perceived value is not only expected to positively influence behavioural intentions, but it is also expected that perceived value would positively affect actual behaviour (i.e. continuance participation on Facebook). This is due to the fact that the unit of analysis in this study is experienced users of Facebook; thus, their accuracy and confidence in relation to the value elements that can be captured through continuance participation in the site are expected to be strong and sound; thanks to the direct past experience with Facebook. The underlying assumption here is that the stronger the confidence in capturing required value elements from continuance participation on the site, the higher the likelihood to carry out the behaviour. Hence, it is hypothesized that perceived value elements to be captured by users through continuance participation on Facebook positively influence actual behaviour.

H6. Users’ perceived value positively affects their continuance participation behaviour on Facebook.

2.2.5. Behavioural intentions and actual behaviour

Behavioural intention is concerned with the motivational factors when an individual intends to carry out a certain behaviour [3]. According to the theory of planned behaviour, it is suggested that behavioural intentions is the most important construct in predicting the decision to carry out a certain behaviour, or not. Previous studies have proven such a strong relationship [3,73] and a meta-analysis study of Sheppard et al. [64] showed an average correlation of 0.53 between the two constructs. Thus, it is suggested that the likelihood of carrying out a certain behaviour increases when an individual’s intention to perform the behaviour is stronger. In the current study, the role of behavioural intentions in predicting actual behaviour is examined and it is hypothesized that behavioural continuance intentions positively influence continuance participation behaviour on Facebook.

H7. Behavioural intentions to continually participate on Facebook positively affect continuance participation behaviour.

3. Research method

This study targets subjects who are users of Facebook in Jordan (http://www.facebook.com). Facebook is a Web 2.0 technology that is used in this study to explain continuance participation in social networking sites from the perspectives of theory of planned behaviour in addition to perceived value. Facebook was originally founded in 2004 for social networking by Mark Zuckerberg with his college roommates and fellow computer science students Eduardo Saverin, Dustin Moskovitz and Chris Hughes, and is privately operated and owned by Facebook Inc. Facebook was initially intended to be used only by students at Harvard University before it opened up as a social network to the public in Spring 2007 [59]. The site has more than 845 million active users as of February 2012 [85]; which is about one person for every ten in the world. The use of Facebook in this study is deemed useful and significant. This is because Facebook is a new generation online social network that is surged in universal popularity; thus it is highly interactive. In addition, its features seem to encourage users to interact and participate in online social groups and other activities. Interestingly, although Facebook is the second popular Website globally following www.google.com, it is the first popular Website in Jordan according to Alexa.com [6]. This indeed adds to the significance of using Facebook in Jordan as an exemplary case in this study.

3.1. Data collection

This study used two phases of data collection conducted one month apart. For both phases, the study utilized the survey questionnaire as the main instrument for data collection, where participation was completely voluntary. Hence, a self-completion, well-structured questionnaire was developed based on previous literature where most of the questions were fixed response alternative items. The first phase of data collection examined the TPB constructs (i.e. “attitude”, “subjective norms”, “perceived behavioural control”, and “intention”) specified by Ajzen [3], along with the addition of “perceived value” construct. In this phase, five hundred and sixteen questionnaires were distributed from September 26, 2011 to October 30, 2011 to university students using Facebook in Jordan majoring in different areas and aged between 18 and 34 years. To increase the response rate, two-rounds of follow up have been conducted by the authors themselves along with some of their colleagues. Accordingly, the total number of returned questionnaires was 483. All returned questionnaires were given code identifiers by the participants themselves and they were asked to retain these codes in order to be used during the second phase of data collection. The second phase of data collection was quicker since it only examined the actual behaviour construct. Out of the 483 students who completed the main questionnaire in the first phase, only 441 completed the follow-up questionnaire one month later, representing a return rate of 86%. Responses from the main and follow-up questionnaires were unable to be matched based on the code identifiers for 21 students. Further, 17 questionnaires were also excluded mainly due to the multiple appearances of skipped questions and missing values. In total, 403 responses (n = 403) were usable.

Actually, there was a high interest in applying this study in Jordan due to the recent rise in adopting and using Facebook as statistics indicated. Facebook as a Web 2.0 Website is heavily used in Jordan in the last few years. Nowadays, the total number of Facebook users in Jordan is 2,226,220 million [68]. The statistics also shows that Facebook penetration in Jordan is 34.75% compared with the country’s population and 127.80% in relation to the number of Internet users. It is also important to mention that the number of Facebook users in Jordan is increasing over time [68]. As such, Jordan is a good context for this study. The use of student subjects in this study is also deemed significant. This is because, in Jordan, the largest group is currently aged between 18 and 24 years (representing 41% of the total number of users), followed by the group of users in the age range of 25 to 34 years (representing 25% of the total number of users) [68]. Hence, the result of this study will provide adequate predictability and generality.

3.2. Measures

The constructs of interests to this study were “Attitude” (ATT), “Subjective Norms” (SN), “Perceived Behavioural Control” (PBC), “Perceived Value” (PV), “Continuance Participation Intentions” (CPI), and “Continuance Participation Behaviour” (CPB). The developed
were used. Twelve respondents, each with more than 2 years of experience in using Facebook were involved in the pre-test. Respondents were asked to comment on the length of the instrument, the format of the scales, content, and the wording of the items used to measure the constructs of this study. As for the pilot test, forty-eight respondents were selected from the Facebook population and took part in the pilot test. Based on the feedback and the comments of the respondents in the pre-test and the pilot test, several questionnaire items were modified and refined to reflect more clearly the purpose of this study and assure its validity. The reliability for all questionnaire items was satisfactory as values for Cronbach’s alpha were above 0.80. As such, the survey instrument used in this study has confirmed content validity and reliability.

### 3.3. Sample profile

The sample’s descriptive statistics showed that 47.9% of the respondents were male and 52.1% were female. Respondents aged between 18 and 24 years represented 58.6% of the sample, whilst 41.4% respondents were aged between 25 and 34 years. As mentioned earlier, the survey instrument was distributed only to Facebook users in Jordan aged between 18 and 34 years. The majority of the respondents (i.e. 66%) were pursuing undergraduate degrees in different areas, and only 34% of the respondents were pursuing their graduate degrees (i.e. Master’s degrees). The majority of the respondents (i.e. 78.9%) have between one and three years of experience in using Facebook, whilst only 15.6% respondents have less than a year of experience, and 5.5% respondents with more than three years of experience in using Facebook. Detailed respondents’ characteristics are shown in Table 2.

### 4. Data analysis and results

#### 4.1. Reliability and validity

The Kaiser–Meyer–Olkin (KMO) and principal component factor analysis were conducted to examine the adequacy of the study sample and the validity of the study instrument, respectively. As the value of KMO was 0.845 as in Appendix A, the study sample was considered adequate and the appropriateness of using principal component factor analysis on the collected data was assured. To examine the validity, the principal component factor analysis was then conducted on all variables included in this study with VARIMAX rotation. Validity includes (1) convergent validity which measures items’ effectiveness in reflecting their corresponding factor, and (2) discriminant validity which measures whether factors are statistically different from each other or not. Based on the conducted factor analysis, a total of six factors were identified; each with an eigenvalue greater than 1.0 as in Appendix B. All items of the variables loaded on each distinct factor and explained 87.6% of the total variance. All variables also showed convergent validity with factor loadings between 0.821 and 0.931 and each indicator showed a higher loading on its corresponding factor than the

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| Table 2 | Sample profile of the survey. |
cross-loadings on other factors. As such, the conditions of convergent and discriminant validity were satisfactorily met as indicated by the result of the factor analysis.

The scales reliability was also measured and the Cronbach’s alphas of all scales as in Table 3 ranged between 0.863 and 0.968; indicating good reliabilities of the scales [86]. The means, standard deviations and reliabilities of all study variables are reported in Table 3.

4.2. Hypotheses testing

The simple correlation amongst all the study variables was conducted using Pearson’s correlation analysis as shown in Table 4. As variables showed significant correlations (p ≤ 0.01), we then utilized the regression model to test multicollinearity by examining collinearity statistics; i.e. Variance Inflation Factor (VIF) and tolerance. This is significant given that variables with high collinearity pose a problem to regression analysis. The VIF value of a variable should not exceed 10; otherwise the variable is considered highly collinear [30]. Collinearity statistics showed that tolerance values of all variables ranged between 0.618 and 0.846 and VIF values ranged between 1.181 and 1.672; indicating that multicollinearity is not a likely threat to the parameter estimates in this study.

Moreover, regression analysis requires data to be normally distributed as a prerequisite so as to ensure the validity and reliability of the results. This research employs Jarque–Bera (skewness-kurtosis) test to make sure that all the variables are within the acceptable limit of the skewness-kurtosis ranges. This test provides a comparison of the distributions of the study data and the normal distribution. Skewness values indicate the symmetry of the distribution. If skewness value is positive, then the data are clustered to the left of the distribution; otherwise data are clustered to the right of the distribution. Kurtosis value indicates the height of the distribution. Positive kurtosis values indicate a peaked distribution, whilst negative kurtosis values suggest a flatter distribution [30]. Skewness–Kurtosis acceptable values have been suggested by scholars such as Tabachnick and Fidell [70] to be within the range of ± 2.58 at the 0.01 significance level. As in Table 5, the Skewness–Kurtosis values of the study data are all within the recommended range and thus normality as a condition for successful regression analysis is assured in this study.

After guaranteeing that necessary conditions are all satisfactorily met, the study hypotheses were tested using multiple regression analyses. First, “continuance participation intention”, “perceived behavioural control”, and “perceived value” were regressed on “continuance participation behaviour”. As in Fig. 2, it was found that “continuance participation intention” (β = 0.414, p < 0.001) and “perceived value” (β = 0.245, p < 0.001) are significantly and positively related to “continuance participation behaviour” (adjusted R² = 0.390). Thus, H6 and H7 are supported. However, results show that “perceived behavioural control” is not significant at p < 0.001 level (β = 0.076). Hence, H4 is not supported.

Thereafter, the four independent variables (i.e. “attitude”, “subjective norms”, “perceived behavioural control”, and “perceived value”) were regressed on “continuance participation intention”. Results, as in Fig. 2, indicate that all four variables are significantly and positively related to “continuance participation intention” (adjusted R² = 0.470); “attitude” (β = 0.189, p < 0.001), “subjective norms” (β = 0.160, p < 0.001), “perceived behavioural control” (β = 0.254, p < 0.001), and “perceived value” (β = 0.362, p < 0.001). Thus, H1, H2, H3, and H5 are supported.

5. Discussion

The motivation of this study is to examine why people keep coming back to Facebook. In other words, the study aims to extend our understanding of the factors affecting the continuance participation on Facebook as a SNS. This research emphasizes the importance of the social aspects and characteristics in determining human intentions and their continuance post-usage behaviour pertaining to Facebook. This attention however is deemed pertinent as previous efforts were mainly concerned with a more technology-related thinking without giving much attention to precisely identify the social-related influences in this context (see for example [73, 75, 47, 71–73]). Furthermore, this research comes to help in covering the gap of research in the Middle East area more specifically in Jordan on how users of Facebook based on their behavioural influences intend to continue participating on Facebook or not. This is significant given that the behaviour of continuance participation in such a community has been ignored in a way or another and mostly underestimated.

For this purpose, the theory of planned behaviour is utilized and extended in this study through the addition of “perceived value” construct aiming to increase its explanatory power and predictive ability in this context. The extension is based on the synthesis of three consistent paradigms and theories: the economic theory of utility (see [15]), cost-benefit paradigm [39], and uses and gratifications paradigm [42]. Through this extension, we postulate that the decision of individuals concerning “continuance participation intention” and “continuance participation behaviour” on Facebook is partly but significantly dependent on the perceived value to be delivered to individuals through continuance participation.

Overall, the results support the validity of the developed model. Our model asserts that continuance participation behaviour on Facebook is determined by “perceived behavioural control”, “perceived value”, in addition to “continuance participation intention” which in turn is determined by individuals’ “attitude”, “subjective norms”, “perceived behavioural control”, and “perceived value”. The results support all formulated

### Table 3
Descriptive statistics and reliability.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Cronbach’s alpha (α)</th>
<th>Mean</th>
<th>Standard deviation</th>
</tr>
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<tbody>
<tr>
<td>Continuance participation behaviour</td>
<td>0.917</td>
<td>3.30</td>
<td>0.763</td>
</tr>
<tr>
<td>Continuance participation intention</td>
<td>0.932</td>
<td>3.60</td>
<td>0.824</td>
</tr>
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<td>0.968</td>
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<tr>
<td>Subjective norms</td>
<td>0.863</td>
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<td>0.705</td>
</tr>
<tr>
<td>Perceived behavioural control</td>
<td>0.928</td>
<td>3.11</td>
<td>0.701</td>
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<tr>
<td>Perceived value</td>
<td>0.874</td>
<td>3.24</td>
<td>0.706</td>
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</tbody>
</table>

### Table 4
Correlation analysis amongst the variables.

<table>
<thead>
<tr>
<th></th>
<th>CPI</th>
<th>CPI</th>
<th>ATT</th>
<th>SN</th>
<th>PBC</th>
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<tbody>
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<td></td>
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<td></td>
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<td>ATT</td>
<td>0.314**</td>
<td>0.451**</td>
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<td></td>
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<td>0.391**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PBC</td>
<td>0.365**</td>
<td>0.406**</td>
<td>0.370**</td>
<td>0.307**</td>
<td></td>
</tr>
<tr>
<td>PV</td>
<td>0.494**</td>
<td>0.340**</td>
<td>0.290**</td>
<td>0.229**</td>
<td>0.340**</td>
</tr>
</tbody>
</table>


** p ≤ 0.01.

### Table 5
Normality test.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuance participation behaviour</td>
<td>−0.463</td>
<td>−0.842</td>
</tr>
<tr>
<td>Continuance participation intention</td>
<td>−1.092</td>
<td>0.457</td>
</tr>
<tr>
<td>Attitude</td>
<td>−0.213</td>
<td>−0.818</td>
</tr>
<tr>
<td>Subjective norms</td>
<td>−0.603</td>
<td>−0.582</td>
</tr>
<tr>
<td>Perceived behavioural control</td>
<td>−0.385</td>
<td>−0.762</td>
</tr>
<tr>
<td>Perceived value</td>
<td>−0.410</td>
<td>−0.267</td>
</tr>
</tbody>
</table>
hypotheses except the 4th one which states that “perceived behavioural control” of users in relation to continuance participation on Facebook positively affects “continuance participation behaviour”. The model developed in this study explains 47% of the variance in “Continuance Participation Intentions” and 39% of the variance in “Continuance Participation Behaviour”.

The results show that the constructs “perceived value”, and “continuance participation intention” are significantly and positively related to “continuance participation behaviour”. This result confirms the role of “perceived value” in shaping users’ continuance participation behaviour in the SNS context. However and although both of the constructs were found to be significant, the relation between “continuance participation intention” and “continuance participation behaviour” is stronger ($\beta = 0.414, p < 0.001$). Indeed, such a strong relation between the two constructs (i.e. Intention–Behaviour) is evident in the literature [3,9,83]. In the present study, however, “perceived behavioural control” did not predict “continuance participation behaviour”, a finding that is not inconsistent with other studies [11,31]. According to Armitage and Conner [9], p. 473–474, “predictions concerning the effects of PBC on behaviour are clouded by the explicit assumption that PBC is an accurate representation of actual (volitional) control”. This is consistent with the argument of Ajzen [3] which indicates that the strength of “perceived behavioural control” in predicting behaviour is dependent on perceptions of control being reflective of actual control. Given the extant literature on ‘illusions of control’ (e.g. [46,48]) in general, particularly as applied to Internet use (e.g. [53]), it seems unlikely that “perceived behavioural control” will reflect actual control accurately. Moreover, According to Ajzen [3], “perceived behavioural control” is not a predictor of behaviour under conditions of very high volitional control [9]. Ajzen [3] also argues that problems with volitional control are represented by only small amount of variance in behaviour that is attributed to behavioural intention (i.e. the only other construct predicting behaviour in the standard TPB). Hence, to examine the level of volitional control for the participants in this study, the constructs “perceived value”, “perceived behavioural control”, and “continuance participation intention” were regressed on “continuance participation behaviour” independently. The results indicate a high volitional control for the participants given that “continuance participation intention” alone explains 22% of the variance in “continuance participation behaviour”, and together with “perceived value” explains 39% of the variance. Indeed, as the present study employs actual users of Facebook as the study sample, it is logical for them to have a high volitional control due to their past experiences in using Facebook. Hence, this result is consistent with the argument of Ajzen [3] concerning the level of volitional control and the role of PBC in predicting behaviour. Additionally, as Facebook is a social networking “light-hearted” application, users are not in great need of control as the use of the system is made on voluntary basis and there is almost no risk in missing information or losing control over their actions on the system. Thus, the perceived behavioural control has much less influence on Facebook users in comparison, for example, to users of Management Information Systems (MIS) where perceived behavioral control can predict users’ continuance use [75].

The results also show that the constructs “attitude”, “subjective norms”, “perceived behavioural control”, and “perceived value” are direct predictors of “continuance participation intention”. Indeed, the ATT, SN, and PBC–Intention relations are evident in the literature [3,9]. Similarly, the relations between each of the aforementioned predictors and continuance intentions are also supported by the literature (e.g. [36]). Moreover and although the PV–Intention relation was examined and proved significant in the literature (e.g. [45]), none has examined the role of “perceived value” in “continuance participation intention” as in the present study. This study shows a significant relation between “perceived value” and “continuance participation intention”. Furthermore, this study interestingly shows that “perceived value” (i.e. the addition to the TPB in this study) exerts the strongest effect ($\beta = 0.362, p < 0.001$) on “continuance participation intention”. Not only that, but it also exerts the highest explanatory power and predictive ability (adjusted $R^2 = 0.290$) concerning “continuance participation intention” when each of the aforementioned constructs was regressed on “continuance participation intention” separately. This result indicates the important role the “perceived value” construct plays in shaping users’ continuance participation intention in the context of SNS in general, and Facebook in particular. Since Facebook is a fairly new technology, users will not risk committing time and effort to it continually without being sure of the benefits and value they can get through using this technology on a continual basis.

The proposed model can also be compared with the standard TPB. As the model developed in this study only extends the theory of planned behaviour without replacing, decomposing, or eliminating any of its original
constructs, no additional data were required to be collected. Hence and to make such a comparison, the constructs “attribute”, “subjective norms”, and “perceived behavioural control” were regressed on “continuance participation intention”, whilst the constructs “perceived behavioural control” and “continuance participation intention” were regressed on “continuance participation behaviour”. The results using the standard TPB show that all relationships are supported at (p<0.001), with only one exception concerning the relationship between “perceived behavioural control” and “continuance participation behaviour” which was found to be significant only at (p<0.05) as shown in Fig. 3. Whilst the developed model in this study which extends the theory of planned behaviour through the addition of “perceived value” could explain 47% of the variance in “continuance participation intention” and 39% of the variance in “continuance participation behaviour”, the standard theory of planned behaviour could explain only 35.4% of the variance in “continuance participation intention” and 34.5% of the variance in “continuance participation behaviour”. Thus, inclusion of the “perceived value” construct explained an additional 11.6% of the variance in “continuance participation intention” and 4.5% of the variance in “continuance participation behaviour” over and above the standard TPB constructs or predictors. Consistent with the research on value-driven post-adoption behaviour, these findings suggest that continuance intentions and behaviours of users of SNS in general, and Facebook in particular are likely to be greater when they perceive the behaviour to be associated with significant added-value (i.e. benefits outweigh sacrifices). Such findings are also consistent with previous research supporting the role of perceived value and benefits in determining intentions and behaviours [45,50,60,80]. The results of the comparison also indicate that when “perceived value” was included in the model, “perceived behavioural control” no longer emerged as a significant predictor of “continuance participation behaviour”. This particular finding suggests that “perceived value” construct may provide a more comprehensive explanation in predicting “continuance participation behaviour” than “perceived behavioural control” construct.

### 6. Implications for theory and practice

#### 6.1. Implications for theory and research

In the field of information systems, research studies tackling the adoption of different information technologies widely cover aspects related to pre-adoptive intentions and behaviour. For such a research area, several models have been developed and theories along with their refinements have been tested (e.g. [3,18,24]). Notwithstanding, there is very little research (e.g. [36,41]) examining information technology post-adoptive intentions and behaviour as in this research. This study has come as a response to the call for more in-depth research concerning the post-adoptive intentions and behaviour of users associated with information technology (e.g. [38]). In particular, this study addresses the post-adoptive intentions and behaviour of Facebook users; thus mainly focusing on SNS as a new Information and Communication Technology (ICT). Despite the fact that SNS in general and Facebook in particular represent a rapidly growing phenomenon that touches upon several aspects of our lives, there is no theory-driven empirical research in the information systems literature tackling the post-adoption issues in this context from a behavioural and social perspective given the apparent social nature of Facebook. The present study contributes to the body of knowledge by exploring the behavioural and social factors affecting users’ decisions on whether to continue or discontinue participating on Facebook, as a representative of SNS, aiming to broaden our understanding and knowledge in this domain.

This research also contributes to the theory of planned behaviour by providing a support for its efficacy in explaining post-adoptive intentions and behaviour. The efficacy of TPB in the pre-adoption context has been greatly supported in the field of IS (e.g. [11,58]). Nevertheless, testing and supporting its efficacy in the post-adoption context, as in this research, have been largely ignored. Concerning TPB, the study further contributes by improving its predictive ability through the inclusion of a new developed construct, namely “perceived value”. Indeed, improving the predictive ability and explanatory power of the theory of planned behaviour without violating its parsimonious nature has also been an issue of interest for a long time. This study extends the theory of planned behaviour by including “perceived value” construct and utilized the extended model in explaining Facebook users’ continuance participation intentions and behaviour. The results of this study proved the significance and contribution of this extension. As highlighted in the previous section, the extended TPB developed in this study explained an additional 11.6% of the variance in “Continuance Participation Intention” and 4.5% of the variance in “Continuance Participation Behaviour” over and above the standard TPB.

In addition, this study has shown the importance of “perceived value” in explaining continuance participation intentions and behaviour. Prior to our study, only limited number of research studies examined the

![Fig. 3. Testing results of the standard TPB.](image-url)
role of “perceived value” in technology adoption (e.g. [45]), but not in the context of post-adoption as in this research. This study is the first empirical effort to examine the impact of “perceived value” in determining post-adaptive intentions and behaviour. The results of this study show that “perceived value” exerts the strongest effect and the highest explanatory power and predictive ability concerning “continuance participation intention” amongst the four antecedents. The results also suggest that “perceived value” construct may provide a more comprehensive explanation in predicting “continuance participation behaviour” than “perceived behavioural control” construct. This seems logical as individuals participating in Facebook are not only classified as technology users, but also considered as service customers. As such, their choice decision and behaviour is mainly determined by the value of the choice object, as established in economics (e.g. [54]) and marketing research (e.g. [67]), in addition to the support in IS research [45,60].

6.2. Implications for practice

From a practical perspective, the present study provides implications for the design, development, and marketing of SNS. The study provides insights on the individual, organizational, and societal levels for decision and policy makers, service providers, and developers. For decision and policy makers, the present study helps them in building and managing strategic plans for sustaining a successful online community, plans that would motivate and enhance a sustainable and continuance participation and engagement of users signing in Facebook and other Web 2.0 communities. Accordingly to that, policies and regulations might need re-management and re-engineering for the sake of supporting users on the long run and guarantee achieving the purpose behind that community in satisfying what users are looking for. Since adopters are concerned about value and benefits provided by a SNS, efforts have to be put into effectively creating and promoting desirable value elements so customers will participate continually. As it has been illustrated in our research, higher perceived value indicates greater willingness to continue participating in a SNS.

In addition, the present study aids service providers and developers in knowing the main factors affecting users’ decisions on whether to continue participating in a SNS or not. Thus, it eases up their ability of recognizing which parts of the online community to correct, balance, protect, and to focus on for improvement purposes. This would help them along with decision and policy makers in providing users with desirable value elements effectively and meeting their needs and characteristics. As it has been illustrated in our research, users’ continuance participation in a SNS such as Facebook depends primarily on users’ personal and social characteristics, situational influences in addition to the their perceived value.

Higher perceived value and continuance participation intention can be realized by improving the Quality of Service (QoS) dimensions of the SNS. In this context, privacy is a major concern for users where compromises are tolerant-free. Policies and regulations should emphasize this issue greatly and developers need to implement privacy feature correctly. Support services should also be available to respond to users’ queries and complaints quickly and successfully. It is also imperative for service providers and developers to put in more efforts to address other important issues related to QoS dimensions such as reliability, security, connectivity, performance, and usability given that users have high expectations in this regard when using SNS. For example, users expect that SNS can be connected to not only through their desktop computers, but also through their smart phones regardless of the operating system. Design issues are also important in this context. SNS need also to be simple, user-friendly and appealing so as to provide users with enjoyable and pleasant experiences in addition to the sense of control. As illustrated in our research, perceived behavioural control influences continuance participation intention. Additionally, it is also important to emphasize the social nature of SNS in the design and development stages given that continuance participation is influenced by personal and social characteristics. The appeal of such QoS dimensions plays an important role in maximizing perceived value and escalating users’ intentions for continuance participation; thus they should not be neglected in the design and development of new features, tools, and functions. The design of SNS could in line with these principles by following the basic ideas of design theory [51] in order to develop systems which are not only easier to adopt, but also used continuously. Although SNS have particularities (such as use on volunteering basis) not relevant to common organizational systems, design theory principles (see [28]) are also relevant to them as emerging and dynamic knowledge processes are the core of their existence.

Moreover, the analysis course of action, as one stage of SNS development, also plays a great role in improving perceived value in addition to users’ intentions for continuance participation on SNS. Requirements engineering course of action should rely heavily on users’ needs and requirements since it is not enough to rely only on the perceptions of experts concerning the usefulness, quality, and demand. It is essential at that stage to conduct market research so as to discover the exact needs and requirements of users that would maximize their intentions for continuance participation. Then, such requirements need to be translated to users through services, tools, functions, and systems.

7. Conclusions

Although this study is one of only a handful to date that has examined the perceived value influences associated with the continuance post-adoption intentions and behaviour of the new and rapidly growing phenomenon of SNS in general and Facebook in particular, this study has a number of limitations which may restrict the generalizability of its findings, and these could be addressed in future research. First, to keep the model parsimonious, the proposed research model only focuses on the impact of “perceived value” along with the original constructs of the TPB on continuance participation intention and behaviour. The developed model in this study explains 47% of the variance in “continuance participation intention” and 39% of the variance in “continuance participation behaviour”, though it is considered as high in information systems research, future studies should continue to enrich the standard TPB by adding relevant factors that may lead to improve its explanatory power and predictive ability and at the same time keep its simplicity and parsimony. Second, the subjects in this study were all undergraduate and postgraduate students aged between 18 and 34 years. Although these subjects represent the highest percentage of adopters of SNS including Facebook, their perception of value along with its importance to the post-adoption decision may significantly differ from others such as professionals and older people. Future studies are encouraged to focus on other interest groups of Facebook such as sport groups, music groups, professional groups, and others. It is also interesting to examine the differences in terms of findings amongst such interest groups. Third, although the post-adoption of SNS including Facebook is a global phenomenon, this study only covers the Jordanian geographical context. We encourage other researchers to replicate such a study in different geographical context and examine the differences in findings. Cross-national studies are also encouraged specifically those examining the role of culture in this context.

The present study examines post-adopters’ continuance participation intentions and behaviour on Facebook from a social and behavioural standpoint. Given that Facebook is an emerging ICT that hosts a large Web 2.0 community, this study is devoted to broaden our understanding of what makes users decide to continue participating on the site, or not. To achieve its objectives, the study utilizes the theory of planned behaviour given its efficacy in this context and extends it through the inclusion
Appendix A

RMQ and Bartlett's Test

<table>
<thead>
<tr>
<th>Component</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
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<tbody>
<tr>
<td>PV1</td>
<td>0.146</td>
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</table>

Appendix B

Extracted method: principal component analysis.
Rotation method: varimax with Kaiser normalization.
a. Rotation converged in 6 iterations.

References


[51] H. Matute, M.A. Vadillo, S. Vegas, F. Blanco, Illusion of control in Internet users and those organized and sponsored by the IEEE and IFIP. Dr. Al-Debei has been awarded the prestigious Vice Chancellor’s Prize for Doctoral Research from the University of Jordan, and the Prestigious Vice Chancellor’s Prize for Doctoral Research from Brunel University, UK.


**Mutaz M. Al-Debei** is an assistant professor and also the director of the Website office at the University of Jordan. He accomplished his PhD degree in Information Systems and Computing at Brunel University, UK. His research interests include the design and implementation of mobile data exchange, and other technological systems from a business model and design-science perspectives. Recently, he has also developed interest in the adoption and usage of social networking sites. Al-Debei has published a number of research papers in learned journals such as the European Journal of Information Systems (EJIS) and Government Information Quarterly (GIQ). He has also published research papers in leading conferences such as ECIS, AMCIS as well as those organized and sponsored by the IEEE and IFIP. Dr. Al-Debei has been awarded many research awards, such as best paper awards, the distinguished researcher award from the University of Jordan, and the prestigious Vice Chancellor’s Prize for Doctoral Research from Brunel University, UK.

**Enas M. Al-Lozi** is an assistant professor at Al-Zaytoonah University of Jordan. She accomplished her PhD degree in Information Systems and Computing at Brunel University, UK. Her research interests focus on the adoption, evaluation, and continued usage of social networking sites from a behavioural and social standpoint. Within this research arena, Al-Lozi has published research papers and performed as an associate editor for the European Conference on Information Systems (ECIS). Al-Lozi participated in an EU-funded project titled Trust and Value Exchange in the Digital Economy and helped in designing and managing workshops, conducting ethnographic and scoping studies at Access Space in Sheffield and with Bebo in Belfast, plus she undertook an ethnographic studies of online users of Bebo in Liverpool. Her background is in Information systems (Bsc) and business management (MBA) from the University of Jordan.

**Natascha Papazafeiroupolou** is a lecturer in the Information Systems and Computing Department at Brunel University, UK. Her PhD is entitled: “A stakeholder approach to electronic commerce diffusion”, from Brunel University and she holds a first degree in Informatics and a MSc in Information Systems both from the Athens University of Economics and Business, Greece. She teaches information technology and management at the undergraduate level. She also supervises researchers in the field of technology adoption by organizations. She has 10 years of research experience on electronic commerce, broadband Internet, Enterprise Re-Engineered Processes (ERP) and Consumer Relationship Management systems (CRM).