Social Networks for Learning: Performance Expectancy Vs Social Influence

Blaise Noël Boidou, Sylvain Luc Agbanglanon, Mélama Coulibaly and Jonas Alexandre Dominique Adjanohoun

Abstract

This article examines the factors that determine students' acceptance of social networks for learning at the Virtual University of Côte d'Ivoire. It investigates whether the expected added value in terms of performance was the primary factor motivating their adoption in learning or training activities. The Unified Theory of Acceptance and Use of Technology model was adopted as the theoretical framework, with data gathered by means of an online survey, to which 315 students responded, and analysed using a partial least squares structural model. The study found that the intention to use social networks for learning is primarily determined by effort expectancy, while social influence is the second most important determinant. While performance expectancy was found to be the least important factor, the results show that it had a positive effect on men's intention to use social networks for learning, but a negative effect for women.

Key words: social networks, Unified Theory of Acceptance and Use of Technology (UTAUT), acceptance, learning, partial least squares structural model

Résumé:

Cet article examine les facteurs qui déterminent l'acceptation par les étudiants des réseaux sociaux pour l'apprentissage à l'Université virtuelle de Côte d'Ivoire. Il cherche à savoir si la valeur ajoutée attendue

ABOUT THE AUTHORS: BLAISE NOËL BOIDOU, Virtual University of Cote d'Ivoire, Ivory Coast, email: blaise.boidou@uvci.edu.ci, SYLVAIN LUC AGBANGLANON, Cheikh Anta Diop University of Dakar, Senegal, email: luc.agbanglanon@ucad.edu.sn, MÉLAMA COULIBALY, Virtual University of Cote d'Ivoire, Ivory Coast, email: melamar.coulibaly@uvci.edu.ci, and JONAS ALEXANDRE DOMINIQUE ADJANOHOUN, Cheikh Anta Diop University of Dakar, Senegal, email: jonas.adjanohoun@ucad.edu.sn

en termes de performance est le principal facteur motivant leur adoption dans les activités d'apprentissage ou de formation. Le modèle de la théorie unifiée de l'acceptation et de l'utilisation de la technologie a été adopté comme cadre théorique. Les données ont été recueillies au moyen d'une enquête en ligne à laquelle 315 étudiants ont répondu et ont été analysées à l'aide d'un modèle structurel des moindres carrés partiels. L'étude a révélé que l'intention d'utiliser les réseaux sociaux pour l'apprentissage est principalement déterminée par l'attente d'un effort, tandis que l'influence sociale est le deuxième déterminant le plus important. Alors que l'attente de performance s'est avérée être le facteur le moins important, les résultats montrent qu'elle a un effet positif sur l'intention des hommes d'utiliser les réseaux sociaux pour l'apprentissage, mais un effet négatif pour les femmes.

Mots clés: réseaux sociaux, théorie unifiée de l'acceptation et de l'utilisation des technologies (UTAUT), acceptation, apprentissage, modèle structurel des moindres carrés partiels.

Introduction

The Virtual University of Côte d'Ivoire (UVCI), which was established by decree No. 2015-775 of 9 December 2015, aims to develop and popularise distance education. In the 2021/2022 academic year, it enrolled more than 10 000 students residing in both rural and urban areas.

Through a digital platform, Moodle, the UVCI trains students in digital and computer science professions according to the Licence, Master, Doctorat system employing a wholly distance learning modus operandi.

Scattered across the country, UVCI students have formed communities in different regions and in neighbourhoods around Abidjan to support one another. Each has an elected official who coordinates activities and mentors new members. He/she is also the interface between the administration and students for any problems encountered.

Each community has created a WhatsApp group to support the communication initially carried out on Facebook. This tool will also be used for training purposes. In addition to social concerns, students

exchange information on socio-cultural activities, the integration of newcomers and courses and learning.

In the communities of Korhogo in the north of the country, Daloa in the centre-west and Man in the west, social networks are used for learning activities. Smartphones are employed for personal exchanges and sharing of resources (texts, images, videos, etc.). This corroborates Hamdani's (2019) assertion that modern learners are inclined to make use of social networks in learning activities. Mlaiki et al. (2012) note that they enable learners to continue learning activities outside the classroom using web tools, while Bandura and Walters (1963) state that social networks promote collaborative learning through rich exchanges between members. They facilitate peer exchange and improved learning, and enrich teaching and learning by enhancing their effectiveness (Alhedaithy and Almobarraz, 2017). Given that social networks were initially considered as entertainment platforms used during students' spare time to maintain friendly relationships (Thivierge, 2011), what factors have contributed to their acceptance in the field of teaching and learning? Nouhou et al.'s (2022) study at Niger's universities and colleges found that students' intention to use social networks was significantly influenced by performance expectancy, effort expectancy and social influence. This was also found to be the case among Indonesian students (Sidik and Syafar, 2020). A study conducted in Saudi Arabia concluded that variables such as learning expectancy, effort expectancy and social influence were significant predictors of students' intention to use mobile learning technologies (Alasmari and Zhang, 2019). Similarly, performance expectancy, social influence and facilitating conditions primarily determined Taiwanese physical education students' decision to use social networks in their training (Liu et al., 2016). Jung and Lee (2015) showed that in Japan, students' intention to use YouTube was primarily determined by performance expectancy. However, when learning occurs solely through distance learning platforms, social influence appears to be the only significant determining factor of such intention (Lin and Lin, 2019). In the African context, Adjanohoun and Agbanglanon (2022) found that social influence and effort expectancy rather than performance expectancy mainly determined the decision to employ social networks for learning among students at the Senegalese Virtual University. Our study sought to ascertain whether these findings

hold in the context of students at the UVCI and to investigate the factors that might influence their intention to use social networks for learning. It aimed to establish whether performance expectancy is of greater significance than social influence and whether the desire to perform well is the most significant factor.

The article begins by discussing the theoretical framework employed, followed by the methodology, the results of the data collection and analysis, and a discussion on the findings.

Theoretical Framework

Boyd and Ellison (2007) define digital social networks as communities of users connected through web platforms. Using the tools available on these platforms, users define profiles and share digital content within the network.

This study employed the Unified Theory of Acceptance and Use of Technology (UTAUT) model that sets out the factors that influence individuals' intention to adopt and use digital technologies in different environments (Venkatesh et al., 2016). In 2003, four researchers conducted an in-depth study of eight models of technology acceptance (Venkatesh et al., 2003). The UTAUT is a synthetic model that was built on the Theory of Reasoned Action (Ajzen and Fishbein, 1980); Technology Acceptance Model (Davis, 1989); Motivation Model; Theory of Planned Behavior (Ajzen, 1991); Combined Model of Technology Acceptance and Theory of Planned Behavior; PC Use Model; Diffusion of Innovations Theory (Rogers, 2003); and Social Cognitive Theory (Bourdon and Hollet-Haudebert, 2009). It posits that four factors determine user acceptance of technology, namely, performance expectancy, effort expectancy, social influence, and facilitating conditions. In the context of the UVCI, the use of the UTAUT model enabled us to identify the predictors of students' intention to accept and use social networks for learning, based on performance expectancy, effort expectancy, social influence, facilitating conditions, intention to use, and expectation of use (Venkatesh et al., 2003).

Performance expectancy relates to the belief that one will achieve better results by using social networks in one's learning. Many studies have established a positive correlation between performance expectancy and intention to use a technology (Attuquayefio and Addo, 2014; Khechine et al., 2016; McKeown and Anderson, 2016; Venkatesh et al., 2003). Performance expectancy has been found to be related to age and gender; the effect is generally stronger for men, especially younger men, than among women (Lin et al., 2017). This social difference between men and women is often linked to the priority placed by men on task success (Venkatesh et al., 2003).

Perceived ease of use of a technology also influences the decision to use it, particularly at the outset of its use in the phase often called the discovery phase. The longer the technology is used, the lower the perceived effort required; indeed, it may cease to be a factor once use of the technology becomes routine (Venkatesh et al., 2003). Perception of effort is linked to gender, age and experience, with perceived ease of use being the main determining factor for women, older people, and those with little experience of the technology (Venkatesh et al., 2003). For the purposes of our study, effort expectancy related to students' perception of the ease of use of social networks in their learning activities.

Social influence refers to an individual's perception of what those who are important to him/her think he/she should or should not do (Venkatesh et al., 2003). It affects behaviour through several psychological processes. Social influence relates to what an individual believes the social group to which he/she belongs would do (Thompson et al., 1991) rather than to what the individual believes significant others would think of him/her if he/she were to participate in learning using digital tools (Fishbein and Ajzen, 1975). This is also true in the case of teachers using digital tools in their teaching practices (Coulibaly, 2019). Lastly, social influence refers to the fact that the individual believes that using technology will improve his/her image in relation to his/her social group (Moore and Benbasat, 1991). Venkatesh et al. (2003) show that these factors are only really significant in cases where the use of technology is an obligation. In this case, conforming is the result of social pressure. However, it should be noted that social influence also gradually decreases over time with use. The more experienced an individual becomes in using the technology, the less social influence will be felt, even if its use was initially a compulsion. In our study, social influence related to students' perceptions of who they trust to know whether or not to use social networks in their learning activities (Venkatesh et al., 2003).

Facilitating conditions encompass an individual's belief that organisational and technical infrastructure exists that will assist them in using the technology (Venkatesh et al., 2003). This leads him/her to believe that the necessary resources and skills are available and that assistance will be on hand at any time. Lastly, facilitating conditions correspond with the individual's way of working (Venkatesh et al., 2003). Their importance increases as the individual gains more experience and encounters difficulties in using the technology. Older people have been found to be more sensitive to these factors (Mensah and Onyancha, 2021). In our study, the facilitating conditions related to students' perception of the presence of organisational and technical infrastructure to support them to use social networks effectively for learning.

In the UTAUT model, intention to use measures the degree of acceptance of the technology. It is thus the explanatory variable. It includes a temporal dimension, i.e., the fact that an individual considers, predicts or plans to continue using the technology, or to re-use it in the short or medium term. In our context, the intention to use and the expectation of use of social networks for learning were linked to students' desire and ambition to use social networks for learning.

With reference to the UTAUT model, we formulated the following hypotheses:

H1: Effort expectancy positively influences the intention to use social networks for learning.

H2: Performance expectancy has a positive effect on the intention to use social networks for learning.

H3: Social influence has a positive effect on the intention to use social networks for learning.

H4: Facilitating conditions have a positive influence on the intention to use social networks for learning.

H5: Intention to use social networks for learning has a positive effect on the expectation of use of social networks for learning.

Methodology

Data Collection

Data were gathered by means of an online questionnaire based on the UTAUT model (Venkatesh et al., 2003). The primary aim was to ascertain whether performance expectancy was more influential than social influence in determining UVCI students' intention to use social networks for learning. The questionnaire was adapted from previous research to make it relevant to the African context (Adjanohoun and Agbanglanon, 2020; Nouhou et al., 2020; Nyebe Atangana et al., 2020). It was administered from 30 September to 10 November 2021 using the UVCI students' mailing list for the 10 125 students enrolled from first-year Bachelor's to Master's level in the 2021/2022 academic year.

After obtaining authorisation from the university to conduct the research, we were granted access to the UVCI's technological infrastructure, enabling us to send the link for the questionnaire to students. They were assured that their participation was voluntary and that they would remain anonymous.

This online questionnaire included 21 items with ordered answers on a 7-level Likert scale, oriented according to the variables of the UTAUT model. It began with general demographic data and the respondents' attitudes towards social networks. A total of 315 students returned completed questionnaires, representing a response rate of 3.11%.

Data Processing

The responses to the questionnaire were exported to Excel before processing. The spelling of the training specialties indicated by students and the different social networks in the responses was corrected to ensure consistency. In order to obtain the frequencies of training specialties and social networks, the Excel file was exported to *R software* (R Core Team, 2021), a programming language and free software for statistics and data science supported by the R Foundation for Statistical Computing.

The processing of the UTAUT data was based on a partial least squares structural equation model. The *SEMinR* package (Ray et al., 2021) of the R software was used for this purpose. Structural equation models enable an examination of the latent variables defined by manifest variables (see Table 1) and the complex relationships between them

(Bollen, 1989; Hoyle, 2012; Rivera, 2015; Schumacker and Lomax, 2015). Known as second generation multivariate statistical methods, they are based on two approaches to parameter estimation, namely, analysis of covariance and analysis of variance. The latter method underlies partial least squares structural equation models. The fact that partial least squares structural equation models are free from any assumption of normality of the data distribution (Latan and Noonan, 2017; Hair et al., 2019) justified our decision to use them.

Results

Characteristics of the Sample

Figure 1 shows that more than three-quarters (78.7%) of the respondents were male. As illustrated in Figure 2, their age ranged from 15 to 56 years, with a median of 24 years.

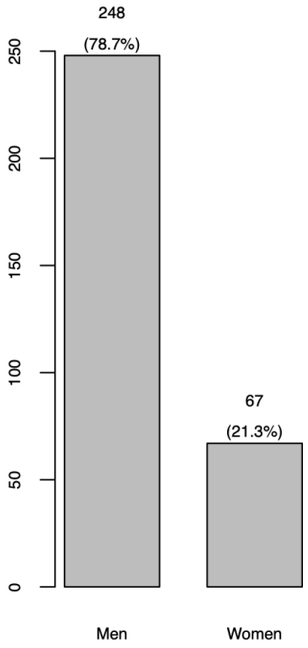

Figure 1: Structure of the sample by gender

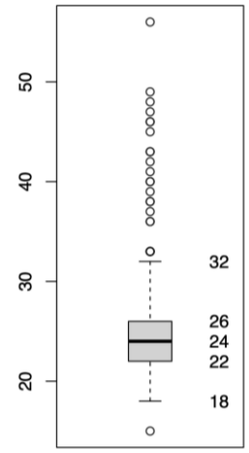

Figure 2: Age distribution of the respondents

The majority of the respondents were in the final year of the Bachelor's level (69.8%), followed by those in the second year of this level (20%).

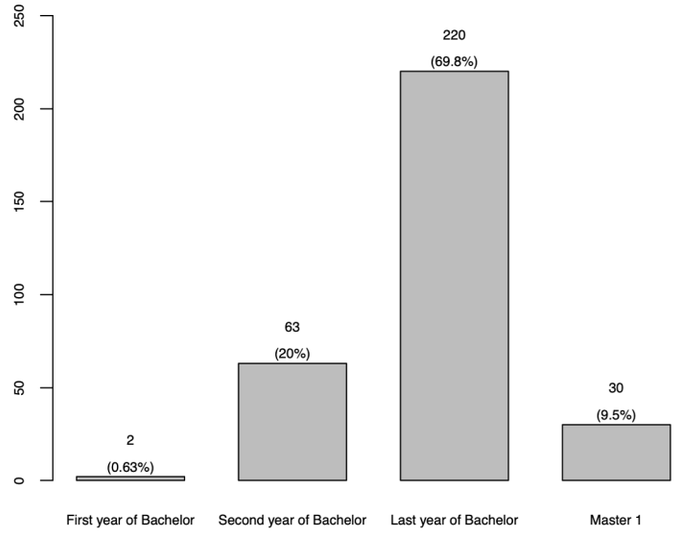

Figure 3: Structure of the sample by level of study

The results revealed that 77.1% of the respondents used social networks for learning, with the remaining 22.9% using the UVCI's teaching platform (LMS), which is the institutional training space laid down in the curriculum.

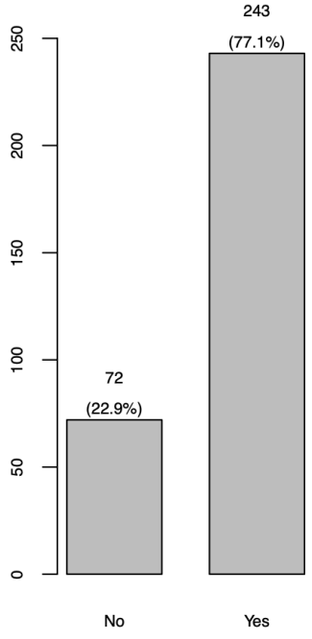

Figure 4: Proportion of students who reported using social networks for learning

The findings showed that WhatsApp was the social network most used by the respondents for learning, ahead of YouTube and Facebook.

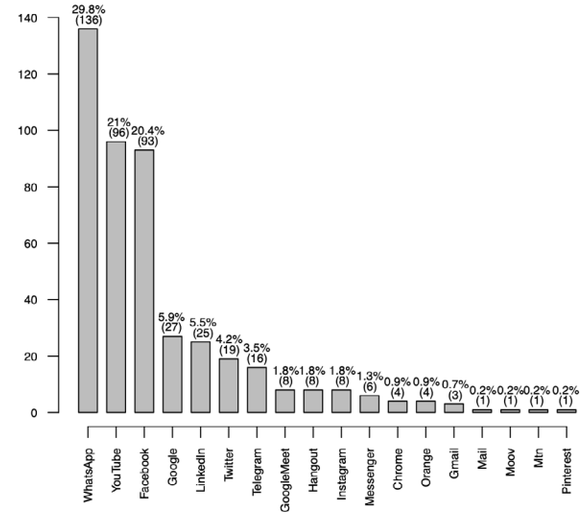

Figure 5: Frequency of reported social networks used for learning

The majority of the participants in the study were enrolled in the Digital Communication programme, and were studying technology.

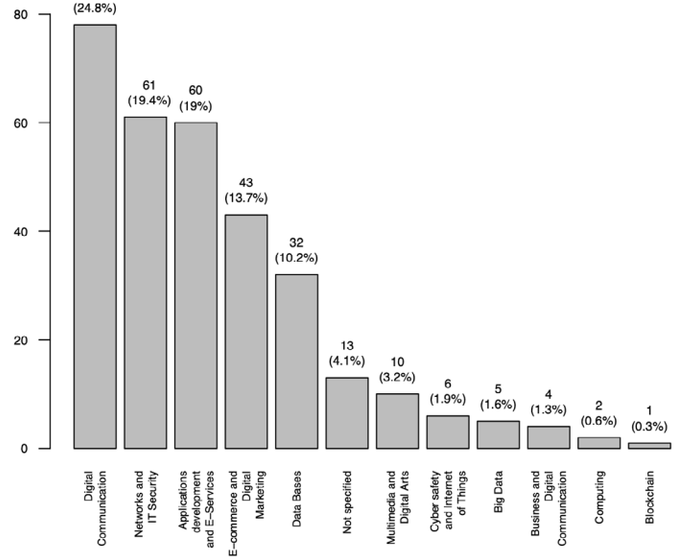

Figure 6: Respondents' field of study

Measurement Model

Prior to evaluating the research model to detect the links between the different constructs, namely, effort expectancy, performance expectancy, social influence, facilitating conditions, intention to use and expectation of use, the quality of the measurement model was assessed by examining the reliability of the indicators, the reliability of the internal consistency of the constructs, their convergent validity and their discriminant validity. The reliability of the indicators was assessed by examining their factor loadings; factor loadings above 0.708 are considered satisfactory. Observation of composite reliability (CR) values allows the reliability of the internal consistency to be assessed. These must be between 0.7 and 0.9 to be considered acceptable to good, but without reaching the 0.95 threshold, which would be problematic. Convergent validity is assessed by examining the average variance extracted (AVE) values. Acceptable AVE values are above 0.5. Discriminant validity is assessed through the heterotrait-monotrait criterion (HTMT). Values of the criterion greater than 0.9 are undesirable, as they show that the indicators of the construct concerned are more correlated with other constructs than with the one they are supposed to define (Hair et al., 2019).

We noted moderately satisfactory reliability of the indicators of our measurement model as the factor loadings of the different constructs were above 0.708, except for the second construct of facilitating conditions (FA_CON2) and the fourth one of performance expectancy (PE_EX4), for which the loadings were 0.6 and 0.68, respectively (Table 1). However, the values of the average variance extracted were all above 0.5, suggesting that the convergent validity of the measurement model was suitable. Composite reliability was satisfactory for performance expectancy (0.87), effort expectancy (0.92), social influence (0.87) and the facilitating conditions (0.83). In contrast, for intention to use and expectation of use, the values (0.97) exceeded the problematic threshold of 0.95. This suggests that the items relating to intention to use and expectation of use presented nuances that our respondents found difficult to detect, even though they have given rise to satisfactory CR in other studies (Adjanohoun and Agbanglanon, 2022; Nouhou et al., 2022).

Table 1: Quality of the measurement model

Latent variable	Item (manifest variable)	Factorial loading	Average variance extracted (AVE)	Composite reliability (CR)
Performance expectancy (PE_EX)	PE_EX1: I find social networks useful in my education.	0.80	0.63	0.87
	PE_EX2: Using social networks allows me to complete learning tasks more quickly.	0.83		
	PE_EX3: Using social networks improves the quality of my learning.	0.85		
	PE_EX4: If I use social networks, I will increase my chances of getting good grades.	0.68		
Effort expectancy (EF_EX)	EF-EX1: It would be easy for me to become skilled in using social networks for my education.	0.83	0.74	0.92
	EF_EX2: My interaction with social networks in my education is clear and understandable.	0.84		
	EF_EX3: I find social networks easy to use for my education.	0.91		
	EF_EX4: Learning to use social networks in training is easy for me.	0.88		
Social influence (SO_INF)	SO_INF1: People who are important to me (parents, friends...) think I should use social networks for my education.	0.81	0.63	0.87
	SO_INF2: My peers, colleagues, or people close to me think I should use social networks for my education.	0.80		
	SO_INF3: The opinion of the authorities at my institution (university, faculty, school or institute) was decisive in using social networks for my education.	0.79		
	SO_INF4: In general, my institution (university or school) encouraged the use of social networks for my education.	0.76		

Facilitating conditions (FA_CON)	FA_CON1: I have the knowledge to use social networks in my education.	0.86	0.62	0.83
	FA_CON2: A specific person (or group) is available for assistance in case of difficulties in using social networks for my education.	0.60		
	FA_CON3: I have the necessary resources to use social networks in my education.	0.88		
Intention to use (INT_US)	INT_US1: I intend to use social networks for my education in the next six months.	0.94	0.91	0.97
	INT_US2: I predict that I will use social networks for my education in the next six months.	0.96		
	INT_US3: I plan to use social networks for my education in the next six months.	0.97		
Expectation of use (EX_US)	EX_US1: I expect to use social networks for my education in the next six months.	0.96	0.92	0.97
	EX_US2: I will use social networks for my education in the next six months.	0.96		
	EX_US3: I am likely to use social networks for my education in the next six months.	0.95		

Table 2: Hétérotrait-Monotrait criterion

	FA_CON (facilitating conditions)	EF_EX (effort expectancy)	PE_EX (performance expectancy)	SO_INF (social influence)	INT_US (intention of use)
EF_EX (effort expectancy)	0.75				
PE_EX (performance expectancy)	0.54	0.81			
SO_INF (social influence)	0.71	0.71	0.64		
INT_US (intention of use)	0.63	0.65	0.59	0.64	
EX_US (expectation of use)	0.60	0.63	0.58	0.62	0.96

Structural Model

The main determining factor of the intention to use social networks for learning among UVCI students was effort expectancy (β = 0.34 and p < 0.001). The results also showed that social influence (β = 0.28 and p < 0.001) was more important than performance expectancy (β = 0.15 and p < 0.05). According to the results, intention to use predominantly determined the expectation of using social networks for learning among UVCI students (β = 0.9 and p < 0.001), unlike facilitating conditions (β = 0.032 and p > 0.05) which had no significant effect.

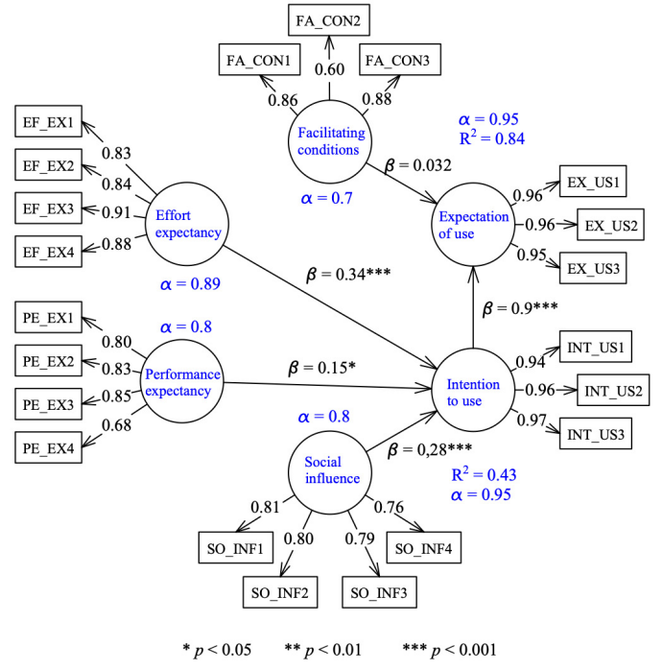

Figure 7: Results of the structural model

A multi-group analysis showed a significant difference (p = 0.0015) between men (β = 0.24) and women (β = -0.34) regarding performance expectancy's influence on the intention to use social networks for learning. This was positive for men, but negative for women. This suggests that men expect their use of social networks for learning to improve their academic performance, while the opposite is noted for women.

No significant difference was found in terms of the determining factors of intention to use and expectation of use of social networks for learning between Master's students (Master 1 and Master 2) and Bachelor's students (first year, second year and final year).

Discussion

The aim of this study was to identify the factors that promote students' intention to use social networks in their learning. It was conducted in the context of UVCI distance education, where students are required to use ICT. While social networks have been presented as mainly geared towards entertainment, the results showed that students use them for learning and that effort expectancy is the main factor that motivates them to do so at the UVCI.

Five hypotheses were formulated in relation to students' expectations when using social networks for learning. The first, which related to effort expectancy, is accepted as it was found to be the main factor that determined intention to use social networks among UVCI students. This result is consistent with those of Venkatesh et al. (2003) who correlated users' perceptions of effort with their experience of this technology, as well as Nouhou et al. (2022) and Alasmari and Zhang (2019) who found that effort expectancy determined the decision to accept social networks for learning. In the case of the UVCI, students confirmed that they had little experience of employing such networks for learning. Students who feel that learning using social networks requires much effort are likely to be less inclined to use them. The fact that they are user-friendly and enjoyable promotes a sense of ease of use in a learning environment.

The second hypothesis that performance expectancy impacts intention to use social networks for learning was found to be conditioned by gender amongst UVCI students as it was positive for men and negative for women. Thus, men expect to perform better academically by using social networks for learning, whereas women do not. This result is consistent with those of Venkatesh et al. (2003) who concluded that, in terms of the UTAUT model, young men's performance expectancy was much higher than that of women. This is essentially because men are more task-oriented than women and due to the fact that these differences in behaviour are induced by specific characteristics shaped by gender roles (Eagly et al., 2012). Nouhou et al. (2022) concluded that performance expectancy was a determining factor in Niger students' choice to use social networks, without specifying gender particularities.

However, our results show that performance expectancy was of less importance than social influence, which validates our third hypothesis. The image conveyed to others seemed to be more important for UVCI students in virtual communities across the cities of Côte d'Ivoire. This is supported by the findings of Moore and Benbasat (1991), who note that individuals aim to enhance their image by participating in activities that employ technological tools. Being outside the communities of learners that mainly use social networks to communicate and learn would isolate the student. These results are in line with those of Coulibaly (2019), who concluded that teachers are influenced by the immediate environment in which they evolve, particularly with regard to the use of digital technology in their teaching practices. Alasmari and Zhang (2019), Nouhou et al. (2022), and Adjanohoun and Agbanglanon (2022) also found that social influence determines students' willingness to learn through social networks.

The study found that facilitating conditions had no effect on the use of social networks among UVCI students, in contrast to the small but significant effect found at the Virtual University of Senegal (Adjanohoun and Agbanglanon, 2022). Despite having only recently begun using social networks for learning, students do not wait for facilitating conditions before starting. Indeed, they are of the view that they have the necessary knowledge to do so, based on their personal experiences with social networks. This also means that they do not feel any need for assistance. Lastly, it was concluded that the intention to use has a primary influence on the expectation of using social networks for learning among UVCI students. This conditions future use and thus influences their expectations.

Conclusion

The study on which this article is based drew on the UTAUT model to identify the factors that determine UVCI students' use of social networks for learning. These students are enrolled in a higher education institution where teaching is mediated by digital tools. The question was

whether students' intention to use social networks for learning purposes was influenced by perceptions that it would improve their academic performance. The study also investigated whether UVCI students' use of social networks for learning purposes was primarily driven by the social influence exerted by their close circle.

Our research revealed that effort expectancy was the most important factor determining UVCI students' intention to use social networks for learning purposes, while the second most important was social influence, followed by performance expectancy. This result was unexpected, as performance expectancy was predicted to take precedence over other factors. It can thus be concluded that the added value that UVCI students hope to gain from using social networks for learning purposes, in terms of improving their academic results, was less important than the influence of those around them.

Further research is suggested on possible links between UVCI students' acceptance of social networks for learning and teachers' use of these networks in their teaching practices. It would also be interesting to compare the factors that determine the use of social networks for learning among students at the Virtual University of Senegal (UVS) and those at the UVCI, given their common specificities, i.e., the use of digital tools in teaching and learning.

References

Adjanohoun, J., and Agbanglanon, S. (2020, Novembre). *Réseaux sociaux pour apprendre: un modèle structurel basé sur la théorie unifiée d'acceptation et d'utilisation des technologies* [communication orale]. Colloque PUN 2020 – Pédagogie universitaire numérique: quelles perspectives à l'ère des usages multiformes des réseaux sociaux pour apprendre? Mulhouse, France. http://framavox.org/...

Adjanohoun, J., and Agbanglanon, S. L. (2022). Déterminants de l'acceptation des réseaux sociaux pour apprendre à l'université virtuelle du Sénégal. *Revue Internationale des Technologies en Pédagogie Universitaire*, 19(2), 7 24. https://doi.org/10.18162/ritpu-2022-v19n2-02

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes* 50(2), 179 211. https://doi.org/10.1016/0

Ajzen, I., and Fishbein, M. (1980). *Understanding attitudes and predicting social behavior.* Prentice Hall.

Alasmari, T., and Zhang, K. (2019). Mobile learning technology acceptance in Saudi Arabian higher education: An extended framework and a mixed-method study. *Education and Information Technologies* 24(3), 2127 2144. https://doi.org/10.1007/s10639-019-09865-8

Alhedaithy, H., and Almobarraz, A. (2017). Adoption of social networks within academic context: A diffusion of innovation approach. *International Journal of Computer and Information Technology* 6(3), 174 183. http://ijcit.com/...

Attuquayefio, S. N., and Addo, H. (2014). Using the UTAUT model to analyze students' ICT adoption. *International Journal of Education and Development Using Information and Communication Technology* (IJEDICT) 10(3), 75 86.

Bandura, A., and Walters, R. H. (1963). *Social learning and personality development*. Holt Rinehart and Winston: New York.

Bollen, K. A. (1989). *Structural equations with latent variables*. John Wiley and Sons.

Bourdon, I., and Hollet-Haudebert, S. (2009). Pourquoi contribuer à des bases de connaissances? Une exploration des facteurs explicatifs à la lumière du modèle UTAUT. *Systèmes d'information et management* 14(1), 9 36. https://doi.org/10.3917/sim.091.0009

Boyd, D. M., and Ellison, N. B. (2007). *Social network sites: Definition, history, and scholarship*. *Journal of Computer-Mediated Communication 13*(1), 210 230. https://doi.org/10.1111/j.1083-6101.2007.00393.x

Coulibaly, M. (2019). *Les obstacles à l'usage des TIC par les enseignants en Côte d'Ivoire: Cas de l'enseignement secondaire*. Thèse de doctorat, Université de Haute-Alsace, Mulhouse. https://tel.archives-ouvertes.fr/tel-02391767/

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly 13*(3), 319 340. https://doi.org/10.2307/249008

Eagly, A. H., and Woo, W. (2012). Social Role Theory. In P. Van Lange, A. W. Kruglanski, and E. T. Higgins (eds) *Handbook of Theories of*

Social Psychology (Vol. 2, pp. 458 476). SAGE Publications Ltd.

Fishbein, M., and Ajzen, I. (1975). *Belief, attitude, intention, and behavior: An introduction to theory and research*. Addison-Wesley Pub. Co.

Hair, J. F., Risher, J. J., Sarstedt, M., and Ringle, C. M. (2019). When to use and how to report the results of PLS SEM. *European Business Review 31*(1), 2 24. https://doi.org/10.1108/EBR-11-2018-0203

Hamdani, M. (2019). Technology acceptance in the use of social networks by teachers and employees of education offices in Ahwaz. *The Turkish Online Journal of Educational Technology 18*(1), 105 117. http://tojet.net/articles/v18i1/18111.pdf

Hoyle, R. H. (2012). *Handbook of structural equation modeling*. Guilford.

Jung, I., and Lee, Y. (2015). YouTube acceptance by university educators and students: A cross-cultural perspective. *Innovations in Education and Teaching International 52*(3), 243 253. https://doi.org/10.1080/14703297.2013.805986

Khechine, H., Lakhal, S., and Ndjambou, P. (2016). A meta-analysis of the UTAUT model: Eleven years later. *Canadian Journal of Administrative Sciences / Revue Canadienne Des Sciences de l'Administration 33*(2), 138 152. https://doi.org/10.1002/cjas.1381

Latan, H., and Noonan, R. (2017). *Partial least squares path modeling*. Springer. https://doi.org/10.1007/978-3-319-64069-3

Lin, X., Featherman, M., and Sarker, S. (2017). Understanding factors affecting users' social networking site continuance: A gender difference perspective. *Information and Management 54*(3), 383 395. https://doi.org/10.1016/j.im.2016.09.004

Lin, J. W., and Lin, H. C. K. (2019). User acceptance in a computer-supported collaborative learning (CSCL) environment with social network awareness (SNA) support. *Australasian Journal of Educational Technology 35*(1). https://doi.org/10.14742/ajet.3395

Liu, L. W., Chang, C. M., Huang, H. C., and Chang, Y. L. (2016). Verification of Social Network Site Use Behavior of the University Physical Education Students. *EURASIA Journal of Mathematics, Science and Technology Education 12*(4). https://doi.org/10.12973/eurasia.2016.1232a

McKeown, T., and Anderson, M. (2016). UTAUT: Capturing differences in undergraduate versus postgraduate learning? *Education + Training 58*(9), 945 965. https://doi.org/10.1108/ET-07-2015-0058

Mensah, M., and Onyancha, O. B. (2021). Demographic factors influencing the adoption and use of social media in university libraries in Ghana: A unified theory of acceptance and use of technology (UTAUT) approach. *Journal of Electronic Resources Librarianship 33*(3), 170 194. https://doi.org/10.1080/1941126X.2021.1949157

Mlaiki, A., Kefi, H., and Kalika, M. (2012). Facteurs psychosociaux et continuité d'utilisation des réseaux sociaux numériques: le cas de Facebook. *Recherches en Sciences de Gestion* (5), 83-111.

Moore, G. C., and Benbasat, I. (1991). Development of an Instrument to Measure the Perceptions of Adopting an Information Technology Innovation. *Information Systems Research 2*(3), 192 222. https://doi.org/10.1287/isre.2.3.192

Nouhou, A. M., Kalmé, B. F., and Goza, N. A. (2020). *L'adoption des réseaux sociaux en formation à distance des étudiants : le cas de la continuité pédagogique universitaire au Niger durant la pandémie de la COVID 19* [communication orale]. Colloque PUN 2020 – Pédagogie universitaire numérique: quelles perspectives à l'ère des usages multiformes des réseaux sociaux pour apprendre? Mulhouse, France. http://framavox.org/...

Nouhou, A. M., Kalmé, B. F., and Goza, N. A. (2022). Les facteurs déterminants de l'adoption des réseaux sociaux en formation à distance par les étudiants au Niger: La leçon de la pandémie de COVID-19. *Revue internationale des technologies en pédagogie universitaire 19*(2), 25 42. https://doi.org/10.18162/ritpu-2022-v19n2-03

Nyebe Atangana, S., Taptue, P. C., Nkontchou Tchinkap, J. Y., Fotsing, J., and Ella Ondoua, T. H. (2020). *Perceptions et attentes des étudiants des universités camerounaises sur l'utilisation des réseaux sociaux comme solutions de continuité pédagogique en période de COVID 19* [communication orale]. Colloque PUN 2020 – Pédagogie universitaire numérique: quelles perspectives à l'ère des usages multiformes des réseaux sociaux pour apprendre? Mulhouse, France. http://framavox.org/...

Ray, S., Danks, N. P., and Calero Valdez, A. (2021). SEMinR: Domain-specific language for building, estimating, and visualizing structural equation models in R. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3900621

R Core Team. (2021). R: *A language and environment for statistical computing. R Foundation for Statistical Computing,* Vienna, Austria. https://www.R-project.org/.

Rivera, L. (2015). *Structural equation modeling (SEM): Concepts, applications, and misconceptions.* Nova Science.

Rogers, E. M. (2003). *Diffusion of innovations* (5th edition). Free Press.

Schumacker, R. E. and Lomax, R. G. (2015). *A beginner's guide to structural equation modeling* (4th edition). Routledge.

Sidik, D., and Syafar, F. (2020). Exploring the factors influencing student's intention to use mobile learning in Indonesia higher education. *Education and Information Technologies 25*(6), 4781 4796. https://doi.org/10.1007/s10639-019-10018-0

Thompson, R. L., Higgins, C. A., and Howell, J. M. (1991). Personal Computing: Toward a Conceptual Model of Utilization. *MIS Quarterly 15*(1), 125 143. https://doi.org/10.2307/249443

Thivierge, J. (2011). *Jeunes, TIC et nouveaux médias: une étude exploratoire au Cégep de Jonquière*. Cégep de Jonquière.

Venkatesh, V., Morris, M. G., Davis, G. B., and Davis, F. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly 27*(3), 425 478. https://doi.org/10.2307/30036540

Venkatesh, V., Thong, J., and Xu, X. (2016). Unified Theory of Acceptance and Use of Technology: A Synthesis and the Road Ahead. *Journal of the Association for Information Systems 17*(5), 328 376. https://doi.org/10.17705/1jais.00428