

Predicting Students' Continuance Intention Related to the Use of Collaborative Web 2.0 Applications

Tihomir Orehovački

*University of Zagreb, Faculty of Organization and Informatics
Varaždin, Croatia*

tihomir.orehovacki@foi.hr

Snježana Babić

*Polytechnic of Rijeka, Department of Business
Rijeka, Croatia*

snjezana.babic@veleri.hr

Abstract

One of the main prerequisites for the implementation of collaborative Web 2.0 applications in higher education is their acceptance by students. With the objective to identify the predictors of students' satisfaction and their intentions related to further use of collaborative Web 2.0 applications, a two-part research was conducted. After completing the collaborative educational activities by means of Google Docs, students were asked to fill out a post-use questionnaire. The aim of this paper is to examine the psychometric characteristics of the research framework which reflects the interplay among relevant aspects of Technology Acceptance Model (TAM) and Expectation-Confirmation Theory (ECT). Empirical findings and practical implications are presented and discussed.

Keywords: Technology Acceptance Model, Expectation Confirmation Theory, Collaborative Web 2.0 Applications, Higher Education, Empirical Findings.

1. Introduction

In the field of e-learning, a special emphasis is placed on constructivist teaching methods. They allow placing the student 'in the centre' of the educational process, while the teacher assumes the role of a facilitator and mediator. Influenced by various trends, these methods have evolved [6]. Among more contemporary theories of learning, socio-constructivism, i.e. collaborative learning, has earned a prominent place. Socio-constructivism combines elements of constructivism with elements of social learning such as discussion, exchange of experiences and building of knowledge [18]. Alongside their learning value, collaborative activities in higher education contribute to the development of teamwork skills that are beneficial in both education and business environments. Putro et al. [33] stated that collaborative experience is immensely useful as students prepare for future work. A significant progress in the development and implementation of different collaborative educational strategies was made possible by Web 2.0 applications such as wikis, blogs, social bookmarking sites, and media sharing tools, among others (for more details see [26]). The reasoning behind the aforementioned is based on the fact that features of Web 2.0 applications (e.g. user-centeredness, participative architecture, openness, interaction, collaboration, etc.) are in agreement with the characteristics of the socio-constructivist theory of learning and teaching [32]. Bubaš et al. [2] discovered that encouragement of collaboration and peer-to-peer learning, enrichment of learning experience, and development of ICT competencies are major advantages of the employment of Web 2.0 applications in the on-line educational settings. According to Hartshorne and Ajjan [14], the use of Web 2.0 applications enhances students' satisfaction, influences learning processes, and increases students' interaction with other participants in the educational ecosystem.

With the aid of collaborative Web 2.0 applications, students can, regardless of space and time, collaborate, learn from each other, exchange ideas and different digital resources, and

build knowledge within set educational goals. Today's market offers a large number of Web 2.0 applications which can be used for collaborative task execution. A representative example of such applications is Google Docs. Being a part of Google Drive cloud computing service, Google Docs allows synchronous work with online documents, including creating, editing, saving, publishing, sharing, etc. (for more information see [3], [31], [37]).

Integration of collaborative Web 2.0 applications into educational processes requires specific considerations such as different aspects within various educational environments. One of the key components in successful implementation of collaborative Web 2.0 applications and services in higher education processes proved to be students' adoption of new technologies. According to White et al. [40], the adoption of an application intended for collaborative work by every student is essential for successful completion of a team task in a virtual environment, as well as for achieving a higher level of the final product quality. Acceptance of collaborative Web 2.0 applications represents a 'process of involving social groups into the innovation process where learning takes place on the learners' experiences, knowledge, habits and preferences'[17] and is therefore particularly specific.

Orehovački et al. [25] found that personal characteristics of students, their motives, and types of online activities they carry out are associated with the use of Web 2.0 applications. However, according to Bhattacharjee [1], acceptance of any information system (IS) is only the beginning of its successful implementation, while 'long-term viability of an IS and its eventual success depend on its continued use rather than first time use'. Building on [1], White et al. [40] emphasize the importance of understanding students' satisfaction in working with collaborative applications, which contributes to their persistence in team work and greater engagement in achieving high quality of the final result.

Considering all the set forth, our research is focused on determining the factors related to students' intentions for continued use of collaborative Web 2.0 applications. The identified set of factors that affect the adoption of collaborative applications may be useful to students, teachers who consider implementation of collaborative Web 2.0 application, higher education institutions targeting the higher quality of e-learning, software companies, etc.

The remainder of the paper is structured as follows. Literature review related to relevant models and theories on technology acceptance and confirmation of expectations together with the proposed model and hypotheses are offered in the following section. The employed research methodology is described in the third section. Empirical findings are presented and discussed in the fourth section. Concluding remarks and future research directions are contained in the last section.

2. Background to the Research

2.1. Literature Review

More recently, the effort of researchers in the field was focused on explaining factors influencing the acceptance of collaborative Web 2.0 applications. This section provides an overview of relevant models and theories that represent a theoretical foundation of our research.

In the Theory of Reasoned Action (TRA), Fishbein and Ajzen [9] postulated that behavioural intention can predict a person's individual behaviour towards an action or object. It should be noted that, according to TRA, a person's behaviour can also be predicted by his or hers attitude towards certain behaviour. With an aim to predict the behaviour of users in the field of information systems use, Davis [5] developed Technology Acceptance Model (TAM). His initial assumption was that users' motivation is influenced by a system's features in an organisation. In TAM, users' motivation is defined with two basic constructs: perceived usefulness (PU), defined as 'the degree to which a person believes that using a particular system would enhance his or her job performance' and perceived ease of use (PEOU), defined as 'the degree to which a person believes that using a particular system would be free from effort' [5]. Perceived usefulness and attitude towards using determine behavioural intention to use,

perceived usefulness and perceived ease of use are predictors of attitude towards using, while perceived ease of use affects perceived usefulness.

However, practice showed that after the initial acceptance of applications, users refrain from further use. For this reason, Bhattacharjee [1] stressed the importance of determining the factors that influence continuance intention of a new information system after the initial acceptance, i.e. experience of working with the IS. According to the Expectation-confirmation theory (ECT), the continuance intention related to the use of a product or service is determined by satisfaction with prior use [19]. Consumer satisfaction describes an individual's positive feeling (affect) towards using the technology. Affect is an emotion which had partial influence on consumers' attitudes. The model predicts that consumer satisfaction is directly affected by expectation and confirmation. Drawing on ECT [19] and TAM [5], Bhattacharjee [1] developed Expectation-Confirmation Model of IS Continuance (ECT-IS), according to which intention to continuously use an IS can be explained by users' satisfaction and perceived usefulness stemming from a perception of expected benefits of using an application, which, in turn, is based on real-life experience with the application. In addition, ECT-IS [1] postulates that the level of confirmation and perceived usefulness contribute to users' satisfaction, while perceived usefulness is affected by confirmation.

Recent research related to the prediction of students' acceptance and continuance intention in the context of using collaborative Web 2.0 applications has associated TAM with different theories and models. For instance, by combining TAM and TPB, Cheung and Vogel [3] confirmed a significant effect of compatibility with existing tools and practices, perception of resources, self-efficiency and subjective norms on the intentions and behaviour when using Google applications. They also found that the ability to share information significantly influences the intention to use applications and stressed that perceived ease of use is more significant predictor of students' intentions than perceived usefulness. By employing the TPB in an analysis of students' acceptance and use of the Web 2.0 application Google Docs, Taylor and Hunsinger [37] confirmed significant positive correlations among attitude, subjective norms, control of behaviour and affect. Aiming to explore differences between collaborative applications, White et al. [40] used ECT and thereby confirmed the influence of students' satisfaction and perceived usefulness on continuance intention in the context of both traditional collaborative applications and Google Docs. In order to determine the predictors of continuance intention related to blogs, Shiau and Chau [35] compared three models: TAM, ECT-IS and an integrated model. The results of testing the psychometric features showed that ECT-IS and the integrated model (ECT-IS and TAM) have greater power in explaining continuance intention related to the use of blogs than TAM itself. They also found that perceived ease of use in TAM model significantly affects continuance intention while this relation in the integrated model was not statistically significant.

As a part of a comprehensive methodology aimed for evaluating all relevant facets of the quality in use of Web 2.0 applications [20], Orehovački proposed a set of attributes that contribute to the success of Web 2.0 applications [23], developed subjective and objective measuring instruments, and examined their psychometric properties on the representative sample of Web 2.0 applications meant for collaborative writing [22], mind mapping [28], and diagramming [27]. More recently, both post-use questionnaire and conceptual model were revised and validated on the sample of Web 2.0 applications with educational potential [24]. According to the results of an empirical study on the assessment of mashup tools [29], ease of use, satisfaction, usefulness, and loyalty significantly contribute to the quality in use of this specific breed of Web 2.0 applications. Finally, Orehovački and Žajdela Hrustek [30] found that learnability, satisfaction, and usefulness are important determinants of the usability of educational artefacts created by means of Web 2.0 applications.

2.2. Research Model and Hypotheses

The aim of the research presented in this paper was to identify constructs that contribute to students' satisfaction and continuance intention related to the collaborative Web 2.0 application Google Docs in educational settings. For this purpose, we developed the research framework

(presented in Figure 1) which illustrate an interplay between all relevant constructs originally introduced in TAM [5] and ECT-IS [1]. The reason why we have selected the integration of these two models is that TAM proved to be the most relevant model in explaining the acceptance of a vast diverse technologies, including particular types of Web 2.0 applications, while ECT-IS is able to explain users' behaviour after their interaction with specific technology. In that respect, following eight hypotheses that constitute the proposed research framework was defined:

- H1. Confirmation will positively influence perceived usefulness.
- H2. Confirmation will positively influence satisfaction.
- H3. Perceived ease of use will positively influence continuance intention.
- H4. Perceived ease of use will positively influence perceived usefulness.
- H5. Perceived ease of use will positively influence satisfaction.
- H6. Perceived usefulness will positively influence continuance intention.
- H7. Perceived usefulness will positively influence satisfaction.
- H8. Satisfaction will positively influence continuance intention.

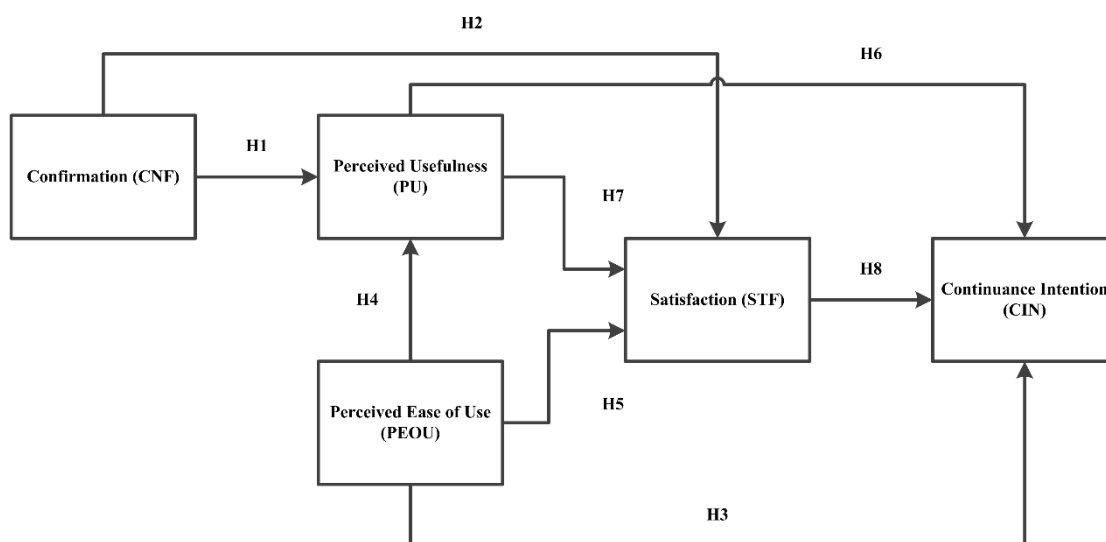


Fig. 1. Research framework.

3. Methodology

With the aim to identify factors that influence students' acceptance and continuance intentions regarding the use of collaborative Web 2.0 applications, an empirical study was carried out. Participants in the study were students from Polytechnic of Rijeka. After having completed educational activities by means of the collaborative Web 2.0 application Google Docs, the students were asked via e-mail and in the classrooms to fill out an online questionnaire that was created using the Kwiksurveys application. Collaborative e-learning activities were part of the hybrid educational process within the course 'Foundations of Informatics'. The students' task was to create a syllabus based on a selected topic using the Google Docs application. It should be noted that students were free to choose the topic and team members. The research was conducted at the beginning of the summer semester of the academic year 2013/2014.

Demographic data about students were gathered in the first part of the questionnaire. The second part contained 21 statements related to the following five constructs: perceived usefulness (PU; six items), perceived ease of use (PEOU; six items), confirmation (CNF; three items), satisfaction (STF; three items) and continuance intention (CIN; three items). Items assigned to constructs were adopted from existing models and tailored to the context of the research. Satisfaction and confirmation were measured by items adopted from Bhattacharjee [1], perceived usefulness and perceived ease of use were measured by items adopted from Davis

[5] and Venkateshet al. [39] while continuance intention was measured by items adopted from Bhattacharjee [1] and Davis [5]. The answers were modulated on a Likert scale ranging from (1) 'strongly disagree' to (4) 'strongly agree'.

The validity and reliability of the proposed research framework and associated hypotheses were examined by means of the partial least squares (PLS) structural equation modelling (SEM) technique. There are several reasons why we have chosen PLS path analysis (PLS-SEM) over its covariance-based counterpart (CB-SEM): (1) PLS-SEM does not require sound theoretical foundations and is therefore employable in exploratory studies [15]; (2) when the sample size is relatively small, PLS-SEM achieves higher level of statistical power than CB-SEM does [38]; (3) if data significantly deviate from normal distribution, PLS-SEM algorithm transforms them in accordance with the central limit theorem which makes parameter estimates highly robust [13]. Data analysis was carried out using SmartPLS 2.0 M3 [34] software.

The research was conducted on a voluntary basis and included 190 students of which 66.84% completed the questionnaire correctly. Majority (53.54%) of participants in the study were male while 46.46 % of them were female. The sample was comprised of full-time (74.02%) and part-time (25.98%) first year undergraduate students enrolled in various departments at Polytechnic of Rijeka: Transport (51.97%), Computer Science (27.56%) and Entrepreneurship (20.47%). The age of students ranged from 18 to 49 years where 74.02% of them had between 18 and 20 years. After having completed collaborative e-learning activities with Google Docs, 90% of students reported that their level of knowledge related to the use of application is at least good. For the purposes of e-learning, 87% of students had used different Web 2.0 applications (blog, wiki, Google Docs or other) for at least one year. The most commonly used Web 2.0 application employed by majority of students (94%) was Facebook. Finally, the participants use mobile devices (59.84%) and desktop computers (50.39%) for more than three hours a day.

4. Results

PLS-SEM path analysis is based on the algorithm which during its first step iteratively approximates the parameters of the measurement model while in its second step estimates standardized partial regression coefficients in the structural model [7]. In that respect, the assessment of the psychometric characteristics of the research framework was carried out in two stages. The quality of the measurement model was evaluated by examining the reliability of manifest variables (items), reliability of latent variables (constructs), convergent validity, and discriminant validity.

Reliability of manifest variables was assessed by exploring the standardized loadings of manifest variables with their respective latent variable. The purification guidelines proposed by Hulland [16] suggest that manifest variables should be retained in measurement model only if their standardized loadings are greater than 0.707. Results of the confirmatory factor analysis (CFA) presented in Table 1 indicate that standardized loadings of all manifest variables were over the recommended acceptable cut-off level, except for CIN3 which was consequently dropped from the measurement model. More specifically, standardized loadings of retained manifest variables were in the range from 0.7851 to 0.9194 which means that latent variables accounted for between 61.64% and 84.53% of their manifest variables' variance.

Reliability of latent variables was tested using two indices: the composite reliability (CR), and Cronbach's alpha (α). Drawing on assumption of equal weightings of items, Cronbach's α represents a lower bound estimate of construct reliability. On the other hand, the CR includes the actual item loadings and therefore offers better estimate of internal consistency. As can be seen in Table 2, estimated values were above the recommended thresholds of 0.707 for both CR and Cronbach's α [13].

Convergent validity was examined using the average variance extracted (AVE). An AVE value of 0.50 and higher means that the shared variance between a latent variable and its manifest variables is larger than the variance of the measurement error and is therefore considered acceptable [10]. Data provided in Table 2 imply that all latent variables have met this criterion.

Discriminant validity is defined as an extent of dissimilarity among latent variables in measurement model. It was evaluated with two measures: the cross loadings and the Fornell-Larcker criterion. The first measure postulates that manifest variables should load higher on their respective latent variable than on the other latent variables in the model. Table 1 clearly illustrates that loadings of all manifest variables with their associated latent variables are higher than their loadings with all remaining latent variables which indicates that the model has met the first measure of discriminant validity. According to the Fornell-Larcker criterion [10], the square root of the AVE of each latent variable should be greater than its highest correlation with any other latent variable in the model. As depicted in Table 3, each latent variable shares more variance with its assigned manifest variables than with other latent variables in the model which confirms the discriminant validity of the model. All the aforementioned confirms the sound reliability and validity of the measurement model.

Table 1. Standardized factor loadings and cross loadings of manifest variables.

Manifest Variables (MVs)	Latent Variables (LVs)				
	Continuance Intention (CIN)	Confirmation (CNF)	Perceived Ease of Use (PEOU)	Perceived Usefulness (PU)	Satisfaction (STF)
CIN1	0.8519	0.4493	0.4551	0.4809	0.4900
CIN2	0.8842	0.4958	0.4336	0.5031	0.4964
CIN3*	0.5356	0.3358	0.3874	0.2924	0.3576
CNF1	0.4602	0.8826	0.5669	0.6321	0.6741
CNF2	0.5205	0.9194	0.5752	0.7042	0.7011
CNF3	0.5059	0.8535	0.5584	0.6223	0.6222
PEOU1	0.3551	0.4700	0.7968	0.4492	0.5591
PEOU2	0.5003	0.4765	0.8658	0.5873	0.5142
PEOU3	0.4938	0.5252	0.8772	0.5976	0.6537
PEOU4	0.5189	0.6424	0.7851	0.7353	0.6382
PEOU5	0.4017	0.4970	0.8583	0.6329	0.5607
PEOU6	0.4706	0.5770	0.8469	0.5618	0.6352
PU1	0.5025	0.7060	0.6144	0.8356	0.6593
PU2	0.4738	0.5749	0.5336	0.8132	0.6192
PU3	0.4615	0.6024	0.6315	0.8304	0.6221
PU4	0.4022	0.5898	0.5341	0.7884	0.6159
PU5	0.4633	0.4815	0.5777	0.8007	0.5782
PU6	0.4745	0.6741	0.6464	0.8707	0.6630
STF1	0.5266	0.6956	0.5898	0.6886	0.8721
STF2	0.4803	0.5866	0.6302	0.6519	0.8555
STF3	0.5318	0.6910	0.6518	0.6602	0.8993

* omitted from measurement model because standardized factor loading was below the cut-off value

Table 2. Convergent validity and internal consistency of latent variables.

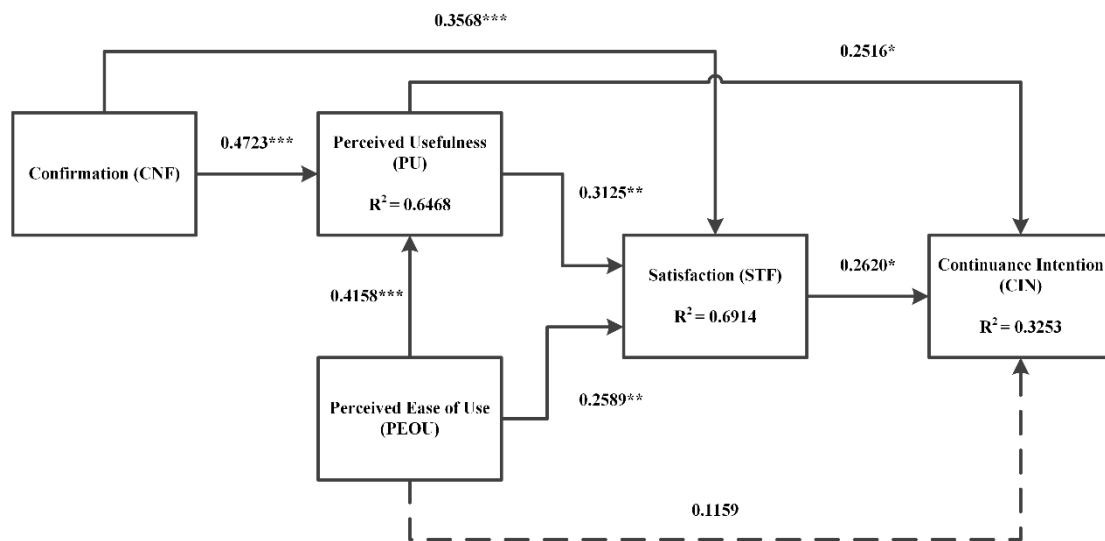
Latent Variables (LVs)	Average Variance Extracted (AVE)	Composite Reliability (CR)	Cronbach's Alpha (α)
Continuance Intention (CIN)	0.8479	0.9177	0.8206
Confirmation (CNF)	0.7842	0.9159	0.8620
Perceived Ease of Use (PEOU)	0.7039	0.9344	0.9158
Perceived Usefulness (PU)	0.6783	0.9267	0.9050
Satisfaction (STF)	0.7670	0.9080	0.8480

Table 3. Discriminant validity of latent variables.

	CIN	CNF	PEOU	PU	STF
CIN	0.9208				
CNF	0.5134	0.8856			
PEOU	0.4830	0.6400	0.8390		
PU	0.5344	0.7384	0.7181	0.8236	
STF	0.5362	0.7532	0.7116	0.7619	0.8758

After having determined the adequacy of the measurement model, the quality of structural model was explored by means of endogenous latent variables' determination coefficient, path coefficients' significance level, exogenous latent variables' effect size, and exogenous latent variables' predictive relevance.

The determination coefficient (R^2) reflects the proportion of endogenous latent variables' variance explained by the set of predictors. Götz et al. [12] emphasize that acceptable values of R^2 depend on the specific research discipline as well as on the individual study. As an outcome of the four models estimation, Orehovački [21] proposed that R^2 values of 0.15, 0.34, and 0.46 can be, as a rule of thumb in empirical studies related to information systems in general and Web 2.0 applications in particular, interpreted as weak, moderate, and substantial, respectively. As presented in Figure 2, 64.68% of variance in perceived usefulness was explained by confirmation and perceived ease of use, 69.14% of variance in satisfaction was accounted for by confirmation, perceived usefulness and perceived ease of use while 32.53% of variance in continuance intention was explained by perceived usefulness and satisfaction. Considering the set forth, predictors of both perceived usefulness and satisfaction have substantial explanatory power whereas predictors of continuance intention have moderate explanatory power.



* $p < 0.01$, ** $p < 0.001$, *** $p < 0.0001$

Fig. 2. PLS estimates for the structural model.

With an objective to examine the hypothesized associations among latent variables in the research framework, the evaluation of path coefficients' goodness was carried out. The significance of path coefficients was tested by means of asymptotic one-tailed t-statistics derived from a bootstrapping resampling procedure. The number of bootstrap samples was 5.000 while the number of cases was equal to the sample size. Results of hypotheses testing are shown in the first five columns of Table 4. It was found that both confirmation ($\beta = 0.4723$, $p < 0.001$) and perceived ease of use ($\beta = 0.4158$, $p < 0.001$) significantly contribute to the perceived usefulness thus providing support for H1 and H4. Data analysis also revealed that confirmation ($\beta = 0.3568$, $p < 0.001$), perceived usefulness ($\beta = 0.3125$, $p < 0.01$), and perceived

ease of use ($\beta = 0.2589$, $p < 0.01$) significantly affect satisfaction thereby supporting hypotheses H2, H7, and H5, respectively. Furthermore, satisfaction ($\beta = 0.2620$, $p < 0.05$) and perceived usefulness ($\beta = 0.2516$, $p < 0.05$) were found to have significant impact on continuance intention thus demonstrating support for H6 and H8. Finally, it appeared that perceived ease of use ($\beta = 0.1159$, ns) does not have significant effect on continuance intention and thus H3 was rejected.

The effect size (f^2) refers to the change in the endogenous latent variable's determination coefficient. Values for f^2 of 0.02, 0.15, or 0.35 indicate that exogenous latent variable has small, medium, or large influence on endogenous latent variable, respectively [4]. As reported in the sixth column of Table 4, confirmation strongly affects ($f^2 = 0.37$) the perceived usefulness whereas perceived ease of use has medium impact ($f^2 = 0.28$) on this endogenous latent variable. While confirmation has medium influence on satisfaction, perceived usefulness and perceived ease of use have small impact ($f^2 = 0.11$ and 0.10 , respectively) on this dependent latent variable. Finally, the effect of satisfaction and perceived usefulness on confirmation turned out to be weak ($f^2 = 0.06$).

The predictive validity of exogenous latent variables was explored by means of the non-parametric Stone's [36] and Geisser's [11] cross-validated redundancy measure Q^2 that employs the blindfolding reuse technique in order to predict the endogenous latent variable's indicators. Changes in Q^2 reflect the exogenous latent variables' relative impact (q^2) in predicting the observed measures of an endogenous latent variable. According to Henseler et al. [15], q^2 values of 0.02, 0.15, or 0.35 signify weak, moderate, or substantial predictive relevance of a certain exogenous latent variable. Considering the data presented in the last column of Table 4, confirmation has moderate relevance ($q^2 = 0.16$) while perceived ease of use has weak relevance ($q^2 = 0.12$) in predicting perceived usefulness. In addition, confirmation, perceived ease of use, and perceived usefulness have weak relevance ($q^2 = 0.12$, 0.12 , and 0.06 , respectively) in predicting satisfaction. Finally, the relevance of both perceived usefulness and satisfaction in predicting continuance intention is modest ($q^2 = 0.04$).

Table 4. Results of testing the hypotheses, effect size, and predictive validity.

Hypotheses	β	t-value	p-value	Supported	f^2	q^2
H1. CNF \rightarrow PU	0.4723	6.1977	***	Yes	0.37	0.16
H2. CNF \rightarrow STF	0.3568	3.8930	***	Yes	0.18	0.12
H3. PEOU \rightarrow CIN	0.1159	1.2577	ns	No	n/a	n/a
H4. PEOU \rightarrow PU	0.4158	4.7215	***	Yes	0.28	0.12
H5. PEOU \rightarrow STF	0.2589	2.8208	**	Yes	0.10	0.06
H6. PU \rightarrow CIN	0.2516	2.2303	*	Yes	0.06	0.04
H7. PU \rightarrow STF	0.3125	2.9849	**	Yes	0.11	0.06
H8. STF \rightarrow CIN	0.2620	2.3807	*	Yes	0.06	0.04

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

5. Discussion and Concluding Remarks

The objective of this paper was to identify a set of factors that affect students' satisfaction and continuance intentions related to the use of Web 2.0 application Google Docs in the context of hybrid courses. For that purpose, a research framework which represents an integration of TAM [5] and ECT-IS [1] models was designed. The psychometric characteristics of the proposed research framework were examined by means of the partial least squares (PLS) structural equation modelling (SEM) technique. By exploring four criteria for testing reflective constructs, both validity and reliability of the measurement model were confirmed. Drawing on the outcomes of non-parametric tests for evaluating the structural model's quality, a strength of hypothesized relationships between constructs which constitute a research framework was determined.

Results of the empirical study confirmed the influence of perceived usefulness of Google Docs (H6) and students' satisfaction (H8) on their behavioural intentions related to future use of this Web 2.0 application. Both findings are in accordance with those reported in prior studies

(e.g. [1], [35] and [40]). Compared to the ECT-IS model [1], the proposed research framework includes perceived ease of use which does not have a direct influence on the continuance intention (H3). However, it was discovered that perceived ease of use significantly affects students' satisfaction after their interaction with Web 2.0 application meant for collaborative writing (H5). The aforementioned finding indicates that difficulties in use of Web 2.0 application result in students' dissatisfaction and as a consequence decrease their motivation to participate in a teamwork (for more information see [40]). It also appeared that in the context of Web 2.0 applications perceived ease of use significantly contributes to the perceived usefulness (H4) which is in conformity with the findings presented in TAM [5]. Moreover, it was found that the extent to which students' expectations related to use of Google Docs have been confirmed represents a significant determinant in explaining their satisfaction with this Web 2.0 application (H2). The set forth finding is in accordance with results reported in [1]. An analysis of the research framework revealed that perceived quality of teamwork activities which can be carried out by means of Web 2.0 application for collaborative writing is significantly affected by the degree to which interaction with it has confirmed students' expectations (H1). Finally, it was discovered that perceived usefulness of Google Docs plays an important role in predicting students' satisfaction with this Web 2.0 application (H7).

Considering the reported findings some sound conclusions can be drawn. To begin with, satisfaction of students who are novel users of Web 2.0 applications meant for collaborative writing can be enhanced with helpful guidelines and well-organized interface functionalities. In addition, students' efficiency and effectiveness in completing teamwork activities can be improved by means of various and high-quality forms of information on how to use the Web 2.0 application for collaborative writing. Finally, an extent to which Web 2.0 application aimed for collaborative writing is able to meet the aforementioned requirements and confirm students' expectation will determine the level of their loyal behaviour in terms of future interaction with this Web 2.0 application.

This paper provides implications for both researchers and practitioners. Higher education teachers can employ the post-use questionnaire in order to evaluate students' acceptance and continuance intention related to the use of collaborative Web 2.0 applications, software developers may use it in order to improve these applications while researchers can use the introduced framework as a background for future advances in the field. Taking into account that only one Web 2.0 application was used in the study and that results presented in this paper are part of an ongoing research, our future work will be focused on the use of the proposed model for the evaluation of various Web 2.0 applications in diverse educational contexts as well as on determining additional constructs that contribute to the students' satisfaction and loyal behaviour.

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