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Factors Influencing University Instructors' Adoption Of The Conception Of Online Teaching As A Medium To Promote Learners' Collaboration In Virtual Learning Environments

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Abstract

The purpose of the study was to build a model of the factors that influence the university instructors' adoption of the conception of online teaching named "promoting the learners' collaboration in virtual learning environments". We conducted a survey to nine hundred sixty-five higher education online instructors belonging to the Open University of Catalonia (www.uoc.edu). In this study we used three scales selected from a larger questionnaire that collected three types of information from the instructors: personal and professional data, online teaching roles, and online teaching conceptions. We identified several conceptions about online teaching through a factorial analysis from the third scale. In the present research we analyze the relationship between the instructors' conception about teaching as a medium to promote learners' collaboration (independent variable), and possible explanatory variables: gender, age, academic education, field of specialization, experience in online teaching, level of teaching, time devoted to online teaching, and instructors' perceived relevance of their online teaching roles. Correlations and preliminary multiple regression analyses were used to make inferential judgements and test the effects of the independent variable separately. Findings from correlation analysis suggest that gender, academic education, online teaching experience, time devoted to online teaching, and, more relevant, all five teaching roles: social interaction, instructional design, technology use, learning assessment and learning processes support, are relevant predictors of the adoption of this conception of teaching by online instructors.

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Keywords: Online teaching conceptions; Online teaching roles; Teaching in Higher Education, Virtual universities.

Introduction

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Considerable research has been conducted on conceptions of teaching in Higher Education, especially in face-to-face settings. Various authors (Kember, 1997; Samuelowicz & Bain, 1992, 2001) established a well-known differentiation between five conceptions of teaching, named "teaching as imparting information", "teaching as

* Corresponding author name: Antoni Badia. Tel.: +0034-933-263-884. *E-mail address*: tbadia@uoc.edu 1) This study was funded by the Spanish Ministry of Education through I+D+i National Plan 2010-2013 (Code EDU2010-15211). transmitting structured knowledge", "teaching as student-instructor interaction", "teaching as facilitating understanding", and "teaching as promoting intellectual development/conceptual change". Kember and Kwan (2000) found that teaching conceptions were closely related to teaching approaches, which are finally adopted by instructors in real educational contexts. Instructors that held the first two types of conceptions were more likely to take a "content-centred approach", while instructors that adopted the two latter were more likely to take a "learning-centred approach". Teaching conceptions are not the only factor that can affect teaching approaches. Martin, Prosser, Trigwell, Ramsden, and Benjamin (2000) pointed out that a group of contextual factors proved to influence the teaching approach finally held by instructors. These authors also mentioned the educational institution, the subject and curriculum, and the characteristics of students taught. Further research (Lindblom- Ylanne, Trigwell, Nevgi & Ashwin, 2006) has also found that the subject and context of teaching influence approaches to teaching.

Less extensive research has been conducted on online teaching conceptions. Gonzalez (2009), taking into account previous contributions from Roberts (2003), identified three online teaching conceptions: "the web is used for individual access to learning materials and information; and for individual assessment", "the web is used for learning related communication (asynchronous and/or synchronous)", and "the web is used as a medium for networked learning". In a further contribution, Gonzalez (2010) proposed two related sets of teaching conceptions using eLearning: "focused on the provision of information", which included two conceptions of eLearning ("as a medium to provide information" and "as a medium for occasional communication"); and "focused on communication-collaboration-knowledge-building", which included two others more ("as a medium for engaging in online discussions" and "as a medium for supporting knowledge-building tasks").

The online teaching conception addressed here has a closed conceptual relationship with several types of conceptions mentioned in previous contributions: "the web for learning related communication" (Gonzalez, 2009), "eLearning as a medium for engaging in online discussions" (Gonzalez, 2010), and "exchange and development of ideas, and resource exploration and sharing" (Lameras, Levy, Paraskakis, & Webber, 2012). According to Gonzalez (2009, 2010), this conception is part of a more general set of teaching conceptions focused on communication-collaboration-knowledge-building, and it's directly linked to the "communicative / networked learning focused" approaches to online teaching. Instructors that adopt this conception usually develop an intensive use of a wide range of media and tools to support learning tasks and activities, especially synchronous and asynchronous spaces of communication. They also provide educational orientations to facilitate learners' participation in collaborative learning tasks, supporting the process of individual knowledge building and share knowledge when student interact with peers, and assessing to what extent students have correctly used the course content in their collaborative learning task.

Despite this extensive characterization, little is known about which are the main factors influencing the adoption of this conception by higher education online instructors. Gonzalez (2009) mentioned that some contextual influences, like specific university and Faculty policies, subject and curriculum, or characteristics of students, could affect instructors' approach to teaching, but he did not specify the degree and possible influences.

This contribution aims to provide a comprehensive overview about what are the factors that can affect the adoption, by online instructors, of the conception of teaching as a medium to promote learners' collaboration. To address this objective, individual characteristics have to be considered. In addition to the instructional factors mentioned above, like subject, curriculum or student characteristics, we also consider other possible factors, as gender, age, academic education, or time devoted to online teaching. Additionally, we hypothesize that online teaching roles are a relevant factor that can influence the adoption of this the online teaching conception. Recent contributions (Álvarez, Guasch, & Espasa, 2009; Baran, Correia, & Thompson, 2011; Guasch, Álvarez & Espasa, 2010) point out the important influence of online teaching roles in the configuration of online teaching in virtual learning environments. Online

teaching roles are commonly defined as the set of functions and tasks about teaching, usually established by the educational institution, which indicate what teachers could do when they carry out their online teaching activity. This issue is especially relevant in virtual universities, because these universities often have had to rethink face-to-face teaching roles to adapt it to teach in virtual learning environments. In many cases, as a result of this process, new teaching roles have emerged, not derived from the traditional face-to-face teacher functions.

2. Method

This study is part of a larger research project entitled "PANIC: Professional identity development of university teachers through reflections about critical incidents", and one particular aim is to know what teaching roles and teaching conceptions may adopt university instructors in their online teaching in a virtual university.

2.1. OnlineTeachingatOpenUniversityofCatalonia(UOC)

The UOC is a university that develops its entire teaching by means of a virtual campus (www.uoc.edu) and through virtual learning environments, especially with asynchronous written communication networks. Online instructors must carry out their online teaching applying certain teaching tasks: planning the course, guiding and monitoring the student's learning process, encouraging students' participation in the process of collaborative knowledge construction, solving students' doubts about learning tasks and content, and assessing the process and outcomes of students' learning.

2.2. Datacollectionandparticipants

The research team sent an email to the instructors to invite them to participate in the research, by completing an online questionnaire, which could be accessed by a link embedded in the message itself. The online version of the questionnaire was answered anonymously by the sample of instructors' from November 2011 to February 2012. Nine hundred sixty-five instructors, 46.13% of the possible population, completed the questionnaire. Among the instructors surveyed, 56.2% were men, and 43.8% were women, and their average age and the end of 2012 was 42.7 years (SD = 7.61).

2.3. Measures

Table 1 shows the overall professional information of instructors, concerning academic education, field of specialization, instructors' experience in online teaching, level of teaching, and time devoted to online teaching (measured with the percentage of online teaching in relation to face-to-face teaching).

Table 1: Information of participants

With regard to online teaching roles, participants were asked to report about the degree of importance of a series of twenty statements presented in the questionnaire. Overall, items showed different teaching tasks developed in virtual learning environments. Instructors chose from five alternatives ranging from "not important" to "very important". Five types of teaching roles emerged from the exploratory factor analysis: social interaction role (sample items: "promote cordial and warm relations between participants" and "establishing relationships of trust and mutual commitment among participants"), instructional design role (sample items: "establish the competencies and learning objectives" and "design learning and assessment activities"), technology use role (sample items: "decide what technological tools are included in the virtual learning environment" and "helping students to use appropriate technological tools"), learning assessment role (sample items: "provide feedback to students on content doubts" and "provide feedback to students about their learning outcomes"), and learning processes support role (sample items: "guide student in the regulation of individual study processes" and "promote student participation in collaborative learning tasks").

Table 1: Information of participants

Academic education	Field of specialization	Online teaching experience	Level of teaching	Time devoted to online teaching
Bachelor = 24.3% Master = 36% PhD = 39.7%	Social sciences = 59.9% Health sciences = 6.9% Engineering = 15.5% Sciences = 6.2% Humanities = 11.4%	< 3 years = 33.5% 3- 10 years = 46.6% < 10 years = 19.9%	Degree = 85.5% Master/PhD = 14.5%	< 25% = 25.4% 26% - 50% = 21% 51% - 99% = 22.5% 100% = 31.1%

Principal components analysis (PCA) showed a five-components ranging from 0.644 to 0.864.

With regard to online teaching conception named "as a medium to promote learners' collaboration", an additional scale was developed to collect information about the level of agreement with the main educational principles of this teaching conception. Four five-level ordinal items ranging from "strongly disagree" to "strongly agree" were used. These items measured different aspects that can be considered as cornerstones of this online teaching conception: a) Learning should be thought of as an activity of social participation in virtual groups, interacting with peers and building shared knowledge; b) To assess learners' outcomes, it is necessary to analyze the extent to which students make an appropriate use of new knowledge in collaborative learning activities; c) Teaching requires to give orientations to students about how they can share their knowledge with peers in a virtual space of communication; and d) The instructor should guide students on how they can improve the quality of their participations in collaborative/cooperative activities with peers. PCA showed a one-component solution (KMO=0.799 and a significant Bartlett's test, p=0.000), with component loadings ranging from 0.790 to 0.819. This solution accounted for 64.03% of the total variance and showed an acceptable reliability with a Cronbach's α of 0.812.

2.4. *Dataanalysis* Descriptive and initial bivariate correlations of our measures (see Table 2) were calculated depending on the level of measurement: Pearson's r, Spearman's rho (r_s), point–biserial correlation (r_{pb}) and phi (r). A preliminary multivariate regression analysis was developed to determine the relationship between every independent variable and the variable "instructors' conception of teaching as a medium to promote learners' collaboration in virtual learning environments", testing for separate effects and controlling the other variables included in the model.

3. Results

Table 2 show that instructors have a moderate level of agreement with the conception of online teaching "as a medium to promote learners' collaboration in virtual learning environments", and have a moderate tendency to use this conception in their teaching (M=3.65, SD=0.64). Findings also indicate that there is a broad consensus among instructors about the higher importance of "Role 2: instructional design" (M=4.34, SD=0.54) and "Role 4: learning assessment" (M =4.44, SD=0.50) to develop their online teaching

Table 2: Descriptive and bivariate analyses

		M	SD	1	2	3	4	5	6	7	8	9	10	11	12
1	Conception: "promote learners' collaboration" [c]	3.65	0.64	-											
2	Gender [d]	0.56	0.50	-0.11[b]	-										
3	Age	42.70	7.61	0.02	0.14[b]	-									
4	Academic education [e]	1.15	0.79	-0.16[b]	-0.03	0.03	-								
5	Field of specialization [f]	1.02	1.42	0.05	0.02	0.01	-0.16[b]	-							
6	Online teaching experience [g]	0.86	0.72	-0.09[a]	0.01[a]	0.38[b]	-0.18[b]	0.01	-						
7	Level of teaching [h]	0.14	0.35	0.03	0.06	0.03	-0.09[a]	0.09[a]	-0.10[b]	-					
8	Time devoted to online teaching [i]	2.03	1.61	0.13[b]	0.01	-0.06	-0.51[b]	0.17[b]	-0.06	-0.10[a]	-				
9	Role 1: Social interaction [j]	3.52	0.78	0.54[b]	-.013[b]	-0.05	-0.10[a]	-0.07[a]	-0.08[a]	0.04	0.07[a]	-			
10	Role 2: Instructional design [j]	4.34	0.54	0.28[b]	-0.15[b]	-0.01	0.01	-0.05	-0.04	0.01	0.04	0.24[b]	-		
11	Role 3: Technology use [j]	3.60	0.76	0.38[b]	-0.12[b]	-0.07[a]	-0.07[a]	0.01	-0.09[a]	0.01	0.01	0.45[b]	0.29[b]	-	
12	Role 4: Learning assessment [j]	4.44	0.50	0.29[b]	-0.14[b]	-0.04	-0.06	0.01	-0.05	-0.04	0.08[a]	0.36[b]	0.40[b]	0.27[b]	-
13	Role 5: Learning processes support [j]	3.66	0.70	0.54[b]	-0.12[b]	-0.03	-0.11[a]	0.02	-0.09[a]	0.03	0.04	0.56[b]	0.26[b]	0.39[b]	0.39[b]

[a] p<0.05; [b] p<0.001; [c] 1="Strongly disagree", 5="Strongly agree"; [d] 0=Female, 1=Male; [e] 1=Undergraduate, 2=Postgraduate, 3=PhD; [f] 1=Social Sciences, 2=Health Sciences, 3=Engineering, 4=Sciences, 5=Humanities; [g] 1=Less than 3 years, 2=From 3 to 10 years, 3=More than

10 years; [h] 1=University degrees, 2=Master's degrees; [i] 1=Less than 25%, 2=From 26% to 50%, 3=From 51% to 99%, 4=100%; [j] 1=Not important, 5=Very important.

Table 2 also contain bivariate correlations between all the relevant variables, indicating that many aspects have a significant correlation with the "promoting learners' collaboration" conception. The strongest relationships are with "Role 1: social interaction" ($r=0.54$, $p<0.001$) and "Role 5: learning processes support" ($r=0.54$, $p<0.001$). There is a weaker correlation with "Role 2: instructional design" ($r=0.28$, $p<0.001$), "Role 3: technology use" ($r=0.38$, $p<0.001$), and "Role 4: learning assessment" ($r=0.29$, $p<0.001$). Finally, there is only a slightly positive but significant correlation with "Time devoted to online teaching" ($r_S=0.13$, $p<0.001$), and a negative and significant correlation with "Gender" ($r_{pb}=-0.11$, $p<0.001$), "Academic education" ($r_S=0.16$, $p<0.001$), and "Online teaching experience" ($r_S=-0.09$, $p<0.05$).

4. Discussion and Conclusion

Results of correlation analysis give empirical support to the statement that factors that affect the adoption of the conception of teaching "as a medium to promote learners' collaboration in virtual learning environments" include three aspects related to individual instructors': personal characteristics (age), instructional characteristics (field of specialization and time devoted to online teaching), and degree of perceived importance of online teaching roles. Results from a preliminary multiple linear regression analysis confirmed a significant effect of socio- demographics (i.e. age, field of specialization and time devoted to online teaching) and of teaching roles (i.e. social interaction, instructional design, technology use and learning processes support) to the adoption of the conception of online teaching as a medium to promote learner's collaboration in virtual learning environments. Preliminary results obtained here may be confirmed by future analysis, specially based on multiple regressions, which would address for the analysis of the potential influence of selected explanatory factors in other online teaching conceptions.

References

Álvarez, I., Guasch, T. & Espasa, A. (2009). University teacher roles and competencies in online learning environments: a theoretical analysis of teaching and learning practices. *European Journal of Teacher Education, 32*(3), 321-336.

Baran, E., Correia, A. P., & Thompson, A. (2011). Transforming online teaching practice: critical analysis of the literature on the roles and competencies of online teachers. *Distance Education*, *32*(3), 421-439.

González, C. (2009). Conceptions of, and approaches to, teaching online: A study of lecturers teaching postgraduate distance courses. *Higher Education, 57(*3), 299-314.

González, C. (2010). What do university teachers think eLearning is good for in their teaching? *Studies in Higher Education, 35*(1), 61-78. Guasch, T., Álvarez, I. & Espasa, A. (2010). University teacher competences in a virtual teaching/learning environment: Analysis of a teacher

training experience. *Teaching and Teacher Education*, 26, 199-206. Kember, D. (1997). A reconceptualisation of the research into university academics' conceptions of teaching. *Learning & Instruction, 7*(3),

255–275. Kember, D., & Kwan, K. (2000). Lecturers' approaches to teaching and their relationship to conceptions of good teaching. *Instructional*

Science, 28(5), 469–490. Lameras, P., Levy, P., Paraskakis, I., & Webber, S. (2012). Blended university teaching using virtual learning environments: conceptions and

approaches. *Instructional Science*, *40*(1), 141-157. Lindblom-Ylanne, S., Trigwell, K., Nevgi, A., & Ashwin, P. (2006). How approaches to teaching are affected by discipline and teaching

context. *Studies in Higher Education, 31*(3), 285–298. Martin, E., Prosser, M., Trigwell, K., Ramsden, P., & Benjamin, J. (2000). What university teachers teach and how they teach it. *Instructional*

Science, *28*(5-6), 5-6. Roberts, G. (2003). Teaching using the web: conceptions and approaches from a phenomenographic perspective. *Instructional Science*, *31*,

127-150. Samuelowicz, K., & Bain, J. D. (1992). Conceptions of teaching held by academic teachers. *Higher Education, 24*(1), 93–111. Samuelowicz, K., & Bain, J. D. (2001). Revisiting academics' beliefs about teaching and learning. *Higher Education, 41*(3), 299–325. Williams, P. E. (2003). Roles and competencies for distance education programs in Higher Education. *The American Journal of Distance Education*, *17*(1), 45-57.