Measuring the educational support provided by the discussion groups: A multidimensional model

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ABSTRACT

Social media technologies stimulate the implementation of the social learning paradigm. Online discussion groups created by educators to support a closer relationship with students are widely used in universities. However, the research on this topic has been carried on mainly by qualitative studies and there are few approaches aiming to measure the educational support provided by the online discussion groups. The main objective of this paper is to analyze the educational support provided by the online discussion groups. A multidimensional model has been developed and tested on a sample of 302 students from various specializations of Valahia University Targoviste, Romania (bachelor and master studies). The educational support has been conceptualized as a global factor that manifests along three dimensions: support for teaching, support for personal development and support for professional formation. The results show that the social learning support the most appreciated by students, leaving the formation for the future profession and the training ones in the secondary plans.

Key words

Online discussion groups, educational support, social media technology, measurement, multidimensional model.

INTRODUCTION

Social media technologies stimulate the implementation of the social learning paradigm. The use of online social networks can lead to the development of user habits. Learning apps and pedagogical methods based on those habits can create a bridge between formal, informal and non-formal learning by placing social teaching opportunities in the students' online context and by developing mutual interactions between colleagues on both curricular subjects, and extra-curricular ones.

The educational environment is characterized by an instrumental communication focused on specific purposes, in order to support a systematic learning process that determines, by its attainment, changes in the receiver behavior. Those features, along with the changing function of the reaction - with the view to achieve the purpose - lead to an essential dimension of didactic communication: *the feedback interaction*, concerning both the explicit and adjacent information - even intentional or formed during the communication [7].

As an important form of organization in the communication process, the *online discussion* - although it implies a physical distance of the educational actors (namely *the teacher* and *the student*) -, through a permanent exchange of messages and documents, but also through fast answers to various requests, often builds a more personalized relationship than the *face-to-face* traditional education [18]. In this respect, the online discussion groups are widely created by educators, in order to support a closer relationship with the students, especially in the higher education area. Practically, this way of comunication can be actually defined as a continuous and ubiquitous human process that models its participants irreversibly [3].

However, the research on this topic has been carried on mainly by qualitative studies and there are few approaches aiming to measure the educational support provided by the online discussion groups.

The main objective of this paper is to analyze the educational support provided by the online discussion groups. In order to do this, a multidimensional model has been developed and tested with university students. The educational support has been conceptualized as a global factor that manifests along three dimensions: support for teaching, support for personal development and support for professional formation.

The rest of this paper is organized as follows. The following section presents the theoretical grounding and conceptualization. In section 3, the results of the empirical study are presented. The paper ends with discussion and conclusion.

RELATED WORK AND CONCEPTUALIZATION

Related work

The use of online discussion groups in the educational context is widely researched in the last years. Several studies have been made involving college and university students [1, 9, 13, 14, 15, 16, 19], some of them mentioning the introduction of the online discussion groups as a suitable educational strategy, but also as an indicator of the students' performance, which empowers flexible and independent learning and knowledge building.

However, the online discussion groups represent an important component of e-learning. To be qualified in this respect, the discussion groups have to meet certain

conditions [18]: (a) to aim at the main elements related to the optimization of the teaching process, such as: facilitation of teacher-student, student-student or student-curriculum interactions; (b) to represent a mean of transmission and didactic transposition of the educational content; (c) to facilitate a fast teacher-student and student-teacher feedback; (d) to represent a relevant resource for the teaching activity; (e) to encourage students to explore topics pertaining to disciplinary, interdisciplinary and transdisciplinary interest, through their own involvement and collaboration with the other members of the virtual community.

Cristescu & Iordache [6] analyzed the main educational advantages and disadvantages related to the use of online discussion groups by university students. The main advantages mentioned by students were: more effective and fast communication between teacher and students, finding out new information, stimulating the cooperation, interaction and development among students. In addition, the study of Iordache et al. [11] explored the potential of online social networks as facilitators of the educational activities in two universities from Romania. The results illustrate that the university students' preferred facilitators are represented by the web page of the group of students, but also the discussion groups set up in Facebook. In fact, the Facebook groups are primarily considered sources of information, with a huge potential to develop interactive, engaging projects and assignments for students, targeting to build important learning communities [17].

Conceptualization

The educational support (EDS) represents a multidimensional construct with three dimensions (first order constructs): teaching support (TS), social learning support (SLS), and professional formation support (FS).

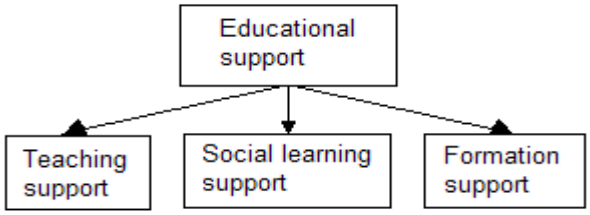

Figure 1. The research model

The *Teaching Support Dimension* (*TS*) refers to the opportunities that online social networks offer to support the teaching process, such as receiving working tasks or homework by students, sending projects to the teacher, and self-evaluation of results. T

he *Social Learning Support Dimension* (*SLS*) refers to the opportunities that discussion groups offer to stimulate critical thinking, interaction within the classroom, learning initiative, collaborative learning, and metacognitive skills development.

The *Formation Support Dimension* (*FS*) refers to the possibilities offered by the discussion groups for broadening the knowledge horizon, for student's training, but also for their formation as future teacher. The nominated constructs (TS, SLS and FS) are mentioned and discussed also in the scientific literature [2, 5, 6, 12]

The operationalization of the above mentioned constructs is presented in Table 1.

Table 1. Variables

Item	Description
TS1	The discussion group facilitates sending the projects to the teacher
TS2	The discussion group facilitates the self-evaluation
SLS1	The discussion group stimulates the development of critical thinking
SLS2	The discussion group stimulates the initiative in learning
SLS3	The discussion group stimulates the collaborative learning
SLS4	The discussion group stimulates the development of metacognitive abilities
FS1	The discussion group facilitates the broadening of the knowledge horizon
FS2	The discussion group facilitates the formation as student
FS3	The discussion group facilitates the formation as future teacher (instructor/tutor)

EMPIRICAL STUDY

Method

The normality of variables was checked by using SPSS for Windows. The model has been tested with AMOS 7.0 for Windows [4], using the *maximum likelihood estimation method*. The model testing results are analyzed based on the *GOF* (*goodness-of-fit*) indices recommended by Hair et al. (2006).

Convergent validity has been assessed by examining the loadings and their statistical significance through *t*-values, the composite reliability, and the average variance extracted. The scale reliability has been analyzed checking the magnitude of Cronbach's alpha.

Factor loadings of all standardized items should be greater than 0.50, ideally exceed 0.7. Item reliability indicating the amount of variance should be greater than 0.50. Composite reliability (CR) measuring the internal consistency of a construct should be at least 0.60 (preferrably grater than 0.7) [8]. The average variance extracted (AVE) measuring the amount of the variance captured by the construct should be greater than 0.50 [10].

Participants and samples

The sample includes 302 students from different specializations of Valahia University Targoviste (117 men and 185 women) enrolled in bachelor and master programs, who also followed the initial teacher training program. Most of them are undergraduates (71.1%). Their age is varying between 19 and 52 years old, with a mean of 25.89 (SD=7.68). Data collection was made using a print survey administered to all the participants. The students were asked for their permission to capture their feedback. The participants were asked to rate the items on a 1 to 5 Likert scale.

Measurement model

The item and construct mean analysis showed that students appreciated most the support for social learning, with a strong emphasis on the stimulation of collaborative learning. The support for vocational training was appreciated to a lesser extent. All items have mean values above the neutral one (3.00).

The indicators standardized regression coefficients are higher than the threshold value of 0.60 (with one exception) and the *t* values - describing the significance of the relation between the indicators and the construct - were greater than 1.96. The correlation between factors is very good, with correlation coefficients ranging from 0.61 to 0.73.

The descriptives, item loadings, scale reliability, and convergent validity criteria are presented in Table 2.

Table 2. Descriptive, loadings and convergent validity (N=302)

Item	M	SD	Alpha	CR	AVE
TS1	2.42	1.92	0.909	0.909	0.769
TS2	2.86	1.96			
SLS1	3.61	1.21	0.746	0.751	0.431
SLS2	3.81	1.18			
SLS3	4.07	1.10			
SLS4	3.49	1.21			
FS1	3.90	1.09	0.799	0.880	0.591
FS2	3.41	1.27			
FS3	3.61	1.21			

The composite reliability of the first-order factors (CR) is acceptable, being above the threshold value of 0.70 - except one value [8], with values ranging from 0.641 to 0.810. Also, the average variance extracted for each factor (AVE) is acceptable given the exploratory nature of the study, with values ranging between 0.431 and 0.591.

Thus, it can be stated that the subscales are uni-dimensional and fulfill convergent validity requirements. The reliability of the measurement scale was verified with Cronbach's alpha, and the values ranged from 0.636 to 0.799.

The model testing results are presented in Figure 2. The results revealed an acceptable fit of the model with the data: (χ^2=60.735, df=24, *p*=0.000, χ^2/df=2.531, TLI=0.938, CFI=0.959, SRMR=0.0468, RMSEA=0.071 (0.049-0.096), pclose=0.056.

Structural model

In this study, testing the structural model was performed using a second order factor (Educational Support) and three first order factors.

The structural model is shown in Figure 3. In the case of a three-factor structural model, the model quality indices have the same values as for the model with three intercorrelated factors.

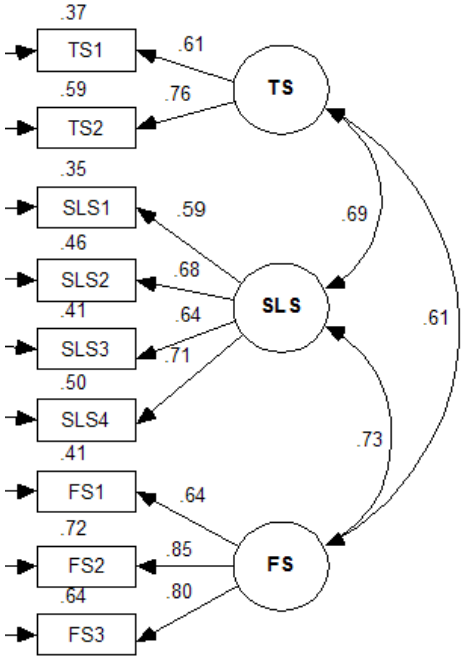

Figure 2. Measurement model testing results (N=302)

The standardized regression coefficients that measure the loading of first-order factors have high values above the threshold of 0.70 (with one exception) and are significant (p <0.001).

The composite reliability of the second-order factor is 0.862 and the value of the average variance extracted is 0.676. The scale reliability (Cronbach's alpha) for the second-order factor is good, the coefficient having the value of 0.710.

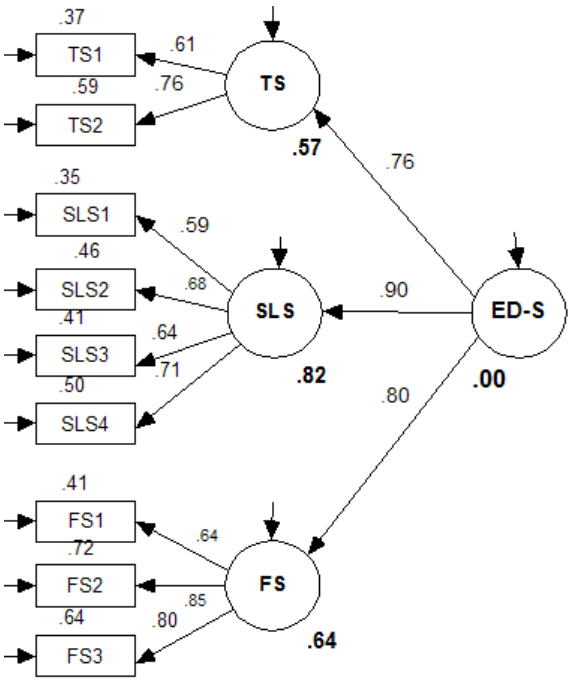

Figure 3. Structural model testing results (N=302)

The model explains 57% of the variance related to the teaching support, 82% of the variance in the social learning support and 64% of the variance in the formation for the future profession support.

The cross-validation results confirm the hypothesis on the second sample.

DISCUSSION AND CONCLUSION

This paper contributes with a theoretically grounded and empirically validated multidimensional model of the educational support provided by the online discussion groups.

The results of the empirical study show clearly that social interaction offers an important support for learning. In this respect, the interaction with peers allows the student to learn from others, with an important gain on comprehension and knowledge developing, but also on establishing connections or consolidating the knowledge. Moreover, the social learning support seems to constitute a proper working environment, offering enough possibilities for students to work collaboratively on analyzing and solving requested problems from different point of views, enhancing in this sense, students' problem-solving and critical thinking skills.

It is also important that students (as future teachers) try to exploit social interaction for extending their pedagogical knowledge. In this case, it seems that an important barrier is met: the students do not have enough teaching experience, including here massive contacts with school students during formal classes. The practical stages are planned for the third year of study (one semester), this being a problem of the national academic curriculum that has to take seriously into account more time dedicated to students' practical experience.

Finally, the teaching support offered through online discussion groups has to be more structured. Here, the teacher can have an important promotion and mediation role: he/she must take initiative and allocate time for proposing tasks or evaluating students' projects, offering also the necessary frames for enhancing students' self- and inter-evaluation.

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