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Online Learning Students` Perceptions of the Community of Inquiry Based on Learning Outcomes and Demographic Variables

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Abstract

The aim of the study is to investigate online learning students' perceptions of the community of inquiry according to learning outcomes such as perceived learning, willingness to participate in online learning and satisfaction, demographic variables such as age, gender, department, previous online learning experience and learning approach. In the research cross-sectional survey method was used. The sample consisted of 277 undergraduate online learning students. The result showed a high level of positive correlation between social and cognitive (r=.751) and cognitive and teaching (r=.738) presence, and a medium level of positive correlation between social and teaching presence (r=.683) for online learning students. Teaching and cognitive presences were found to be important factors in terms of perceived learning, satisfaction and willingness to participate in online learning among online learning students. There were no significant differences between social, cognitive and teaching presence scores according to students' gender, age, department and previous online learning experience.

Key words: *cognitive presence; perceived learning; satisfaction; social presence; teaching presence.*

Introduction

One of today's most common applications of distance education is online learning (OL). OL application started in 1997 and increased and spread with each passing day (Lynch, 2002). When OL students' data was examined, it was revealed that the

total number of students was 5.6 million in 2009. This figure increased by 2.4 million from 2004 to 2009. Today, most of the OL students are in higher education (Allen & Seaman, 2010). Students in higher education should acquire critical/creative thinking, metacognition and self-directed learning skills to use in lifelong learning. In the acquisition of these skills, interactive and guiding potentials of online learning, e-learning, and blended learning play an important role (Garrison & Anderson, 2003). Expansion of online learning has brought new theories that aim to improve online learning (Dringus, 2000).

OL should have its own theories. Transactional distance, equivalency, and community of inquiry (CoI) can be counted as most prevalent example of online learning theories. Among these theories, CoI framework has been widely used in literature because it is appropriate for current applications such as online, electronic and blended learning.

The CoI Model

The CoI framework model was formed between the years 1996-2001, first proposed and written in 2000 (Garrison, Anderson, & Archer, 2000; 2010). It is mainly theory that is aimed to investigate the nature of an ideal educational experience. An educational experience has two purposes. The first is the construction of meaning with a personal perspective; the second is a discussion and affirmation in collaboration with these meanings in a community. Teachers should establish cognitive and social conditions consistent with the learning approaches. In this respect, if teachers blend the individual and collaborative learning activities properly, and also balance these activities, they can create a better CoI. A CoI creates an environment which aims to reach a common point in discussing the meaning, to diagnose misunderstandings and to allow taking responsibility in learning (Garrison & Anderson, 2003). The CoI framework is a model, consisting of cognitive, social and teaching components.

The first component is teaching presence (TP) which includes the design and organization of social and cognitive processes that support learning (Swan, Garrison, & Richardson, 2009). TP is required to decrease the transactional distance between OL instructor and student (Arbaugh & Hwang, 2006). The TP component with this aspect is expressed as the methods used by teachers to create quality OL experiences for supporting and maintaining a productive CoI (Bangert, 2009). TP includes the creation of learning activities and discussion time (Fabro & Garrison, 1998).

Social presence (SP) is the participant's ability to share in the CoI using the medium of communication through the social and emotional aspects to reflect themselves (Garrison et al., 2000). When this environment occurs in the written word, it is difficult to establish the SP. Cognitive presence (CP) contains meaning construction and confirmation of students by speaking and reflecting in a critical CoI (Garrison, & Anderson, 2003). The CoI framework's elements, categories and indicators are shown in Table 1.

Table 1

CoI Framework's Element, Category & Indicator (Garrison & Anderson, 2003)

Elements	Categories	Indicators
TP	Instructional Design & Organization	Setting curriculum, designing methods, establishing time parameters Utilizing the medium effectively, establishing netiquette, making macro-level comments about course content.
	Facilitating Discourse	Identifying areas of agreement/disagreement, seeking to reach consensus/ understanding, encouraging, acknowledging, or reinforcing student contributions, setting the climate for learning, drawing in participants, prompting discussion, assessing the efficacy of the process.
	Direct Instruction	Present content/questions, focus the discussion on specific issues, summarize the discussion, confirm understanding through assessment and explanatory feedback, diagnose misconceptions, inject knowledge from diverse sources, e.g., textbooks, articles, internet, personal experiences, responding to technical concerns.
SP	Affective	Expression of emotions, use of humor, self-disclosure.
	Open Communication	Continuing a thread, quoting from others' messages, referring explicitly to others' messages, asking questions, complimenting, expressing appreciation, expressing agreement.
	Cohesive	Vocatives, addresses or refers to the group using inclusive pronouns, phatics, salutation.
CP	Triggering Event	Recognize the problem, puzzlement.
	Exploration	Divergence, information exchange, suggestions, brainstorming, intuitive leaps.
	Integration	Convergence, synthesis, solutions.
	Resolution	Apply, test, defend.

The three-component structure of the conceptual model creates a collaborative online teaching and constructivist perspective on learning (Anderson, Rourke, Garrison, & Archer, 2001; Garrison, & Arbaugh, 2007; Arbaugh, 2008). In this view, learning or teaching occurs from gaining personal meaning and information in a social process (Cleveland-Innes, Garrison, & Kinsel, 2007). Therefore, the model theorizes the result of collaborative learning between active participants in a learning community which supports an appropriate teaching orchestra in online environments (TP) and respect to each other (SP) besides individual understanding and meaning in OL (Garrison & Arbaugh, 2007).

One of the important aspects of the theory is the three-component interrelatedness and factors that enhance each other (Akyol, Garrison, & Ozden, 2009). The CoI framework provides an effective structure to understand, shape and develop the experience acquired in education (Akyol, et al., 2009).

If online teachers want to create a good Col, they must promote deep learning and provide learning retention (Rovai, 2002; Shea, 2006), create interaction with interactive tools and sustain collaborative learning among learners that are used for

scaffolding (Garrison & Anderson, 2003; Garrison et al., 2000; Richardson & Swan, 2003), use reflective questioning and critical inquiry (Bangert, 2008), use formative feedback in the assessment (Shea, 2006), create instructor or learner based activities for different course content (Akyol et al., 2010; Arbaugh & Benbunan-Fich, 2005), develop flexibility and individualized course content for students' learning style, readiness, learning approach and other individual differences (Horzum, 2007, 2011, 2015).

Designing online courses according to the CoI framework has a positive effect on learning outcomes (Swan, Matthews, Bogle, Boles, & Day, 2012). In Akyol & Garrison's (2008) research TP and SP were found to change significantly over time. In this respect, measuring this framework and updating applications with the obtained results, gained in importance.

Measurement of the CoI Framework Components and Their Relationship

In CoI framework TP has a positive impact on creating and maintaining SP and CP in learning environment (Garrison, Cleveland-Innes, & Fung, 2010). In this respect, TP creates an atmosphere for the construction of CP (Garrison & Cleveland-Innes, 2005) and SP (Rourke, Anderson, Garrison, & Archer, 1999). According to Garrison et al. (2000), CP is not sufficient to maintain the sustainability of the community by itself. Therefore, SP is very important for the construction of the CP and CoI (Tu, 2000). Rourke et al. (1999) note that a high level of SP is required for the meaningful and in-depth OL. However, it is also emphasized that too much of SP, like too much of anything, negatively affects learning. In this respect, having an ideal level of SP is essential for CP (Garrison & Anderson, 2003). Also, measuring CoI framework components is important for learning experience in online and blended learning environment.

When CoI studies were examined, it was observed that quantitative and qualitative measurement have been used to measure the CoI framework. Some of these studies tested the structure formed by a CoI framework with factor analysis by using a scale (Arbaugh, 2007, Arbaugh & Hwang 2006; Arbaugh et al., 2008; Bangert, 2009; Carlon et al., 2012; Swan et al., 2008; Shea & Bidjerano, 2009; Garrison et al., 2004, 2010; Garrison & Arbaugh, 2007; Arbaugh, Bangert, & Cleveland-Innes, 2010). In these studies, there is an attempt to put forward a model as a self-report with items belonging to the three components of the model. According to another study, CoI structure was tested by asking students whether scale's items and components are important for the model (Diaz, Swan, Ice, & Kupczynski, 2010). In addition, there are studies confirming the structure by qualitative and quantitative data through the examination of students' data in the electronic system (Burgess, Slate, Rojas-LeBouef, & LaPrairie, 2010; Ke, 2010; Kupczynski, Ice, Wiesenmayer, & McCluskey, 2010).

In CoI research, there are studies examining only a single component of the model, such as SP (Gunawardena, & Zittle, 1997; Rourke et al., 1999), CP (Garrison, & Cleveland-Innes, 2005; Shea, & Bidjerano, 2009) and TP (Ice, Curtis, Phillips, &

Wells, 2007; Shea, Li, Swan, & Pickett, 2005) as well as studies examining all of the components (Arbaugh, 2007, 2008; Burgess et al., 2010; Diaz et al., 2010). Many studies that examine whole framework confirmed the CoI framework's three-component structure (Arbaugh, 2007, 2008; Bangert, 2009; Shea, 2006; Shea & Bidjerano, 2009; Garrison et al., 2010). In addition, there are studies examining the relationship between the components of the structure. In most of these studies, components positively affect and/or predict each other (Akyol, Garrison, et al., 2009; Archibald, 2010; Bangert, 2008; Conrad, 2009; Garrison et al., 2010; Jo, Lim, & Kim, 2011; Shea & Bidjerano, 2008, 2009, 2010).

Environment in which the students learn and tools that were used in learning are also among the elements that influence the perception of components of the model. Traphagan et al. (2010) showed that tools, tasks, and cohesion of the group affect CP, SP, and TP. In this respect, it is important that the CoI framework is measured for each learning environment. Garrison and Anderson (2003), and Nagel and Kotzé (2010) claim that the theory is highly effective on e-learning and supported in a positive way. The theory is also highly effective in blended learning (Garrison & Kanuka, 2004). Akyol et al. (2009) propose that some components of the model have been developed even more in blended learning environment. In addition, there are studies demonstrating that CoI components were measured in high degrees for online learning (Akyol et al., 2009). Burgess et al. (2010) found evidence for the presence of the CoI framework components in a study conducted in *Second Life* environment. Shea et al. (2010) found out that the presence of CoI structure exists in social network environment, using content analysis.

Other research studies found that the CoI model is also influenced by the different cultures to which students belong. The scale which has been used in these numerous studies was developed by Arbaugh et al. (2008). It is very important to create scale's form in other languages (i.e. Turkish form) in order to confirm structure of the model, examine relations within the components of the model and to validate the model in different cultures.

Relationship between CoI Framework Components, Learning Outcomes and Demographic Variables

The CoI framework components are associated with learning outcomes, perceived learning, attitude, meta-cognition and satisfaction as the most used among these. TP is associated with perceived learning and satisfaction (Swan & Shih, 2005). In addition, there was a positive significant correlation between students' social interactions, community perceptions and satisfaction (Ke, 2010). Akyol and Garrison (2008) found a similar relationship among TP, CP, perceived learning, and satisfaction. Despite other research findings, Akyol and Garrison (2008) found no significant relationship between SP and perceived learning. To resolve the conflicting findings of these research studies, more studies need to be conducted on the CoI framework with satisfaction and perceived learning.

Gender, age and department are among the most associated demographic variables with CoI components in the CoI literature. When studies on the variable of *gender* are examined, it can be seen that there is a difference of the CoI components according to gender (Kim, Kwon, & Cho, 2011; Shea & Bidjerano, 2008, 2009) but there are no difference according to gender (Carlon et al., 2012; Garrison et al., 2010; Shea, Li, & Pickett, 2006). Furthermore, no significant differences were found for age-related research (Carlon et al., 2012; Shea et al., 2006; Shea & Bidjerano, 2008, 2009). But Akyol, Ice, Garrison, and Mitchell (2010) found that young people between the ages of 18 and 22, and elderly between the ages of 48 and 62, perceived CP and TP as the same component. This situation showed that CoI framework model consists of two components instead of three in these age groups. The three component model was intact in the age range of 23 to 37 in the same study. This situation shows that there are findings for perception of the component which differ according to age. Due to contradictory findings in the research studies related to age and gender, there is a need for further studies with these variables.

Department and grade are other variables that are associated with components of CoI. In many studies, differences were found in CoI components according to the students' departments. In these studies, CoI model is indicated as more suitable in applied fields (Arbaugh et al., 2010). Carlon et al. (2012) found that TP did not differ according to department but department affected SP and CP. Studying for a master or undergraduate program had no significant effect on CoI components. Also, it was found that the academic level has a direct effect on TP (Shea & Bidjerano, 2008). In addition, CP did not differ according to the department (Garrison et al., 2010) and there were no significant differences between TP, SP and CP according to grade (Shea, & Bidjerano, 2009). In another study, the three- component structure occurred regardless of department and grade (Akyol et al., 2010). These findings indicate that the department and grade level have no effect on CoI perception.

Futhermore, the perception of the learning community was found to differ with respect to the students who work (Shea et al., 2006) and has a negative correlation with surface learning (Ke, 2010). Carlon et al. (2012) found that course experience affects SP but not CP and TP.

Research Aim

In a study inspecting the research related to the CoI, Garrison and Arbaugh (2007) expressed that further studies should be more interdisciplinary. Also, further studies should be based on quantitative methods and some opportunities should be created for research studies which provide the relationship between model components and learning outcomes. It is very important to examine this relationship in further studies (Arbaugh et al., 2010).

The research has three main aims. The first aim is to adapt the CoI scale, which has been used widely in the literature and was developed by Arbaugh et al. (2008), to

Turkish. For this purpose, the research investigated whether the scale has the three-component structure in OL, the participants and Turkish language. Secondly, the aim was to establish if there is a relationship between CoI components and learning outcomes (perceived learning, satisfaction and willingness to participate in OL). Thirdly, to investigate any difference of perception about the framework components according to demographic variables (age, gender, department, previous online learning experience, learning approach).

Method

Model

The study was conducted according to the cross sectional survey method which is one of the survey methods. The cross sectional survey model is a model in which variables are measured just once in an instant (Fraenkel & Wallen, 2006). In the research, OL students' perceptions of the CoI and other variables were measured once at a time.

Participants

The participants consisted of 290 online graduate students enrolled in 9 different departments at the Sakarya University in Turkey. The survey's link was published in the forum existing in the students' learning management system. Volunteer participants filled out the questionnare on the internet. Therefore convenient sampling method was used. At the end, invalid forms were excluded and data from 277 forms were used in the analyses. When the participants' gender was examined, it was established that 92 of them (33.2%) were females and 185 (66.8%) were males. Thirty-nine of the participants (14.1%) previously experienced online learning, while 238 of them (85.9%) did not experience online learning. When the participants' departments were examined the following was established: 26 (9.4%) in business administration, 32 (11.6%) in local governments and city planning, 35 (12.6%) in information technology, 28 (10.1%) in history, 29 (10.5%) in public finance, 37 (13.4%) in public administration, 29 (10.5%) in management information systems, 30 (10.8%) in e-engineering management, and 31 (11.2%) in e-MBA graduate programs. From the gathered data it was found that participants' learning approaches are as follows: 34 (12.3%) have neither deep nor surface (D-S-), 113 (40.8%) have deep (D + H-), 21 (7.6%) have surface (D-S+) and 109 (39.4%) have both deep and surface (D + H+) learning approaches. The participants' ages ranged from 21 to 48 years and the average (±SD) of the entire sample was 30.76 (±5.26) years. When the age was categorized, 7 of the participants (2.5%) were found to be in 18-22, 241 of them (87%) in 23-37 and 29 of them (20.5%) in 38-48 age range.

Instruments

Four different scales were used in the research: CoI, perceived learning, satisfaction and willingness to continue to OL. Some additional questions, such as gender, age, department, learning approach were added.

CoI Scale. The CoI scale consisted of 34 items with 3 dimensions on a 5-point Likert scale. The scale was developed by Arbaugh et al. (2008) and adapted to Turkish by the researcher. Firstly, the researcher obtained permissions via e-mail from the developers for the adaptation of the scale. The researcher translated the scale into Turkish. After that, the scale was prepared as a structure including the original item, translated item and proposed version, and was given to 5 experts. After making all the necessary adjustments based on experts' opinions, linguistic equivalence study of the scale was conducted. English and Turkish versions of the scale were both filled by 20 online graduate students with one-week intervals respectively. Two versions were accepted as equal since the correlation between them was for SP .83; CP .82 and TP .81. Furthermore, exploratory and confirmatory factor analyses were performed to examine the original scale's structure as appropriate for the Turkish culture. The internal consistency coefficient (Cronbach Alpha) was calculated as .97.

Perceived Learning Scale (PLS). PLS consisted of one factor and 5 items on a 5-point Likert scale. The scale was developed by Horzum, Demir Kaymak and Canan Güngören (2015). While the scale was being developed, exploratory factor analysis was used. Items explained 64% of the total variance. Factor loadings of the items ranged from .87 to .90. Internal consistency coefficient of the Turkish version was .92.

Satisfaction Scale (SS). SS consisted of one factor and 9 items on a 5-point Likert scale. The scale was developed by Gunawardena and Zittle (1997) and adapted into Turkish by Horzum (2015). Confirmatory factor analysis showed that the scale has acceptable fit indexes (χ^2/df=2.13, RMSEA=0.075, AGFI= 0.90, GFI=0.95, CFI=0.99, NFI=0.99 and NNFI=0.99). The internal consistency coefficient was .95.

Willingness Scale (WS). WS consisted of two factors and 10 items on a 5-point Likert scale. The scale was developed by Horzum and Çakır (2012). While the scale was being developed, exploratory and confirmatory factor analysis was used. Confirmatory factor analysis showed that the scale has acceptable fit indexes (χ^2/df=2.71, RMSEA=0.047, SRMR= 0.030, AGFI= 0.96, GFI=0.98, CFI=0.99, NFI=0.99 and NNFI=0.99). Items explained 65% of the total variance. The internal consistency coefficient was .90.

Data Analysis

Permission was obtained from Sakarya University Distance Education Center where the students were officially enrolled in the program. The questionnaire was administered to the participants through the Internet. In this research, the Pearson correlation coefficient, regression, independent sample t-test and one way ANOVA were utilized to determine the relationships and differences between variables. These analyses were performed with a statistical software package.

Results

The findings concerning the validity and reliability of the study are presented first. For factorial validity of the scale, exploratory and confirmatory factor analyses were

conducted. Considering the 34-item scale in total, the scale was found to have a three-factor structure. Factor loading of 34 items ranged from 0.51 to 0.77. The three factors of the scale explain 67.63% of the total variance. These results indicate that the scale explains the graduate students' perception of CoI framework acceptably. Confirmatory factor analysis (CFA) was performed to investigate the fitness of model data. Fit indexes of the 34 item scale that contains three factors were tested by CFA. CFA results showed that all t values were significant at 0.05 level (Presented in Appendix 1). The results presented the following fit indexes: χ^2/df=1.74, RMSEA=0.071, GFI=0.85, CFI=0.98, NFI=0.96, and NNFI=0.98. All fit indexes were within an acceptable range.

In order to construct validity, convergent and discriminant validities were conducted. Convergent validity was evaluated by using average variance extracted (AVE). AVE scores of TP, SP and CP components were 0.57; 0.52 and 0.62 respectively. These scores were higher than 0.50, therefore scale's convergent validity is acceptable. Discriminant validities scores of TP, SP and CP components were 0.76; 0.72 and 0.79 respectively. Discriminant validities scores were higher than 0.50, therefore scale's convergent validity is acceptable (Fornel & Larcker, 1981).

The reliability of the scale was examined with the internal consistency coefficient and composite reliability. The Cronbach Alpha coefficient was found to be .97 for overall scale and components' values for the SP, CP and TP were .90, .94, and .94, respectively. Composite reliability for SP, CP and TP components were .91, .95, and .95, respectively. The internal-consistency coefficients and composite reliability obtained for the scale indicated that these reliability values are in the acceptable range. The scale, which was adapted within this research, has emerged as a valid and reliable scale that can be used to measure the CoI framework perception. The adapted Turkish version was found to be consistent with the original version regarding item factor consistency and structure. The scale was found to be appropriate for Turkish culture.

After that, the CoI components and their subcategories' mean scores were calculated. The mean score for TP is (±SD) 3.83 (±0.77), design and organization subcategory's mean score is (±SD) 3.97 (±0.79), facilitation subcategory's mean score is 3.81 (±0.84) and direct instruction subcategory's mean score is 3.70 (±0.92). These results show that mean scores of subcategories of TP are close to each other for the participants.

The mean score for SP is (±SD) 3.79 (±0.75), affective expression subcategory's mean score is (±SD) 3.70 (±0.85), open communication subcategory's mean score is 3.90 (±0.86) and group cohesion subcategory's mean score is 3.77 (±0.83). These results show that open communication subcategory is more in the foreground for the SP of the participants.

The mean score for CP is (±SD) 3.80 (±0.79), triggering event subcategory's mean score is (±SD) 3.77 (±0.89), exploration subcategory's mean score is 3.83 (±0.91), integration subcategory's mean score is 3.79 (±0.94) and resolution subcategory's mean score is 3.83(±0.82). These numbers show that exploration and resolution are more in the foreground for the participants. All of the three components are well

above mid-point of the five point Likert scale. Also, these results showed that learning activities carried out with these participants might be effective in creating learning experiences.

Other findings of the study are: the relationship among the CoI components, the CoI components' prediction of perceived learning, satisfaction, and willingness to participate in OL, examination of CoI components in terms of gender, age, department, previous online learning experience, and learning approaches, respectively. The relationship among CoI components was examined by correlation analysis. The results are presented in Table 2.

Table 2

Relationship between SP, TP, CP to each other for OL students

Variables	SP	CP	TP
SP	1		
CP	.751**	1	
TP	.683**	.738**	1

A significant higher or medium positive correlation was found among CoI components. Findings suggest that whenever one of the CoI components increases, it triggers an increment in other CoI components. This situation is true if there is a decrease as well.

Through multiple linear regressions it was examined whether perceived learning, satisfaction, and willingness to participate in OL is predicted by CoI components or not. As a result of the first multiple linear regression analysis, OL students' perceived learning as related with TP and CP ($F_{(3, 273)}$=18.47, p<.05). For the regression analysis, the multiple correlation coefficient is 0.41. TP and CP explain ≈16.9% of the total variance in the scores of students' perceived learning. TP (β=0.20, t=2.37, p<.05) and CP (β=0.28, t=2.98, p=.05) merged as significant predictors in the perceived learning model.

The second multiple linear regression analysis revealed that satisfaction was related with TP and CP ($F_{(3, 273)}$=77.48, p<.05). For the regression analysis, the multiple correlation coefficient is .69. TP and CP explain ≈48% of the total variance in scores of satisfaction. TP (β=0.22, t=3.11, p<.05) and CP (β=0.47, t=6.16, p=.05) emerged as significant predictors in the satisfaction model.

The third multiple linear regression analysis revealed that willingness to participate in OL was related with TP and CP ($F_{(3, 273)}$=78.80, p<.05). For the regression analysis, the multiple correlation coefficient is .68. TP and CP explain ≈46% of the total variance in scores of willingness to participate in OL. TP (β=0.14, t=2.04, p<.05) and CP (β=0.59, t=7.80, p=.05) emerged as significant predictors in the willingness to participate in OL model.

According to the results of the regression analyses, TP and CP were found to be major components in terms of perceived learning, satisfaction, and willingness. The

most important of these components is CP. Although SP is associated with other components, it does not directly affect the essential learning outcomes.

An independent sample t-test was conducted to compare CoI components according to gender. The results are presented in Table 3.

Table 3

CoI Frameworks component variation by gender

Component	Gender	N	$\bar{\chi}$	sd	df	t	p
SP	Female	92	33.86	6.76	275	-0.49	.59
	Male	185	34.28	6.70			
CP	Female	92	45.21	9.23	275	-0.45	.62
	Male	185	45.87	9.73			
TP	Female	92	49.42	9.31	275	-0.53	.66
	Male	185	49.99	10.36			

It was found that there was no significant difference (p>.05) in the SP ($t_{(275)}$=-0.49), CP ($t_{(275)}$=-0.45) and TP ($t_{(275)}$=-0.53) according to gender. Correlation analysis was used to examine the relationship between CoI Components and students' ages. No significant relationship was found between students' ages and SP (r=0.03), CP (r=0.04), TP (r=0.03).

One-way ANOVA was conducted to compare CoI components by students' departments. The results show that there was no significant difference (p>.05) in SP ($F_{(8\text{-}268)}$=1.02), CP ($F_{(8\text{-}268)}$=1.49) and TP ($F_{(3\text{-}975)}$=1.56) according to department. Furthermore, another independent sample t-test was conducted to compare CoI components according to previous online learning experience. The results showed that SP ($t_{(275)}$=-0.50), CP ($t_{(275)}$=0.94) and TP ($t_{(275)}$=-0.18) did not significantly differ (p>.05) according to previous online learning experience. Another one-way ANOVA was conducted with CoI components according to the learning approaches. The results are presented in Table 4.

It can be seen in Table 4 that SP ($F_{(3,273)}$=20.69), CP ($F_{(3,273)}$=16.70) and TP ($F_{(3,273)}$=20.69) perceptions significantly differ according to OL students' learning approaches. In order to identify the learning approaches that account for these differences, multiple comparison Tukey Test was used. Test results are analyzed in terms of CoI framework components respectively.

In the research, it was found that OL students who prefer deep (D+S-) ($\bar{\chi}$=52.31) and deep & surface (D+S+) ($\bar{\chi}$=51.51) learning approaches have statistically higher SP scores than surface (D-S+) ($\bar{\chi}$=42.91) and neither surface nor deep (D-S-) ($\bar{\chi}$=40.27) learning approaches. Besides these, students' SP perceptions did not differ in terms of deep and deep & surface, surface and neither surface nor deep learning approaches. These findings show that students who prefer deep learning approach have higher SP scores in OL.

Table 4

CoI Framework component variation by learning approaches.

Component	L.A.	N	$\bar{X}$	SD		SS	df	MS	F	p
SP	D-S-	34	40.27	9.07	Between group	5121.65	3	1707.22	20.69	.000
	D+S-	113	52.31	9.60						
	D-S+	21	42.91	12.49	Within group	22521.82	273	82.49		
	D+S+	109	51.51	7.68						
	Total	277	49.81	10.01	Total	27643.47	276			
CP	D-S-	34	28.35	6.44	Between group	1928.56	3	642.86	16.70	.000
	D+S-	113	35.66	6.36						
	D-S+	21	29.76	5.62	Within group	10506.94	273	38.48		
	D+S+	109	35.21	6.06						
	Total	277	34.14	6.71	Total	12435.50	276			
TP	D-S-	34	33.38	6.18	Between group	7830.58	3	2610.19	41.06	.000
	D+S-	113	48.58	8.42						
	D-S+	21	38.10	10.11	Within group	17352.74	273	63.56		
	D+S+	109	47.88	7.51						
	Total	277	45.65	9.55	Total	25183.32	276			

It was found that OL students who prefer deep (D+S-) ($\bar{X}$=35.66) and deep & surface (D+S+) ($\bar{X}$=35.21) learning approaches have statistically higher CP scores than surface (D-S+) ($\bar{X}$=29.76) and neither surface nor deep (D-S-) ($\bar{X}$=28.35) learning approaches. Besides these, students' CP perceptions did not differ in terms of deep and deep & surface, surface and neither surface nor deep learning approaches. These findings show that students with deep learning approach have higher CP scores in OL.

Furthermore, it was found that OL students with deep (D+S-) ($\bar{X}$= 48.58) and deep & surface (D+S+) ($\bar{X}$=47.88) learning approaches have statistically higher TP scores than surface (D-S+) ($\bar{X}$=38.10) and neither surface nor deep (D-S-) ($\bar{X}$=33.38) learning approaches. Meanwhile, significant difference was found in terms of TP between the surface and neither surface nor deep learning approaches. OL students who prefer surface learning have statistically higher TP scores than neither surface nor deep learning approach. These findings show that students who prefer deep or surface learning approach have higher TP scores in OL.

Discussions

Today, OL is one of the most commonly used distance education types. Although OL is very common, OL dropout rates are high as compared to other distance learning types (Lee & Choi, 2010). It may be possible to solve these problems if OL develops its own theories (Keegan, 1996). CoI theory is one of these theories. The CoI framework is stated as a three-component structure which provides creating an educational

experience on OL, personal meaning construction and collective meanings with the community (Anderson, Rourke, Garrison, & Archer, 2001).

In this research, CoI scale (Arbaugh et al., 2008), which was developed to measure three-factor structure of CoI framework, was tested whether it has the same structure in Turkish culture or not. As a result of the research, a three-factor structure with 34 items was found. Additionally, three components of the CoI scale were higher than midpoint of a 5-point Likert scale. This shows that OL activities have positive effects on participants' educational experience. In this respect, the obtained results are consistent with studies emphasizing three-factor structure of the theory (Anderson et al., 2001; Garrison et al., 2000; Garrison & Anderson, 2003; Garrison & Arbaugh, 2007; Arbaugh, 2008) and expressing that theory framework exists in OL (Swan et al., 2012; Akyol & Garrison, 2008). In addition, the CoI framework was found to be similar to the theory in terms of Turkish culture and the participants.

Age and grade are very significant variables in terms of the CoI framework. Particularly, age affects the CoI components' perception. This may be explanined with students' digital native attributes and skills of technology usage which may have been affected by the difference in age. Higher class level students have more confidence in the system. The participants in the graduate student groups are about 30 years old on average. Akyol et al. (2010) emphasized that the three-component model was obtained in the range of 23-37 years. In the research by Carlon et al. (2012) the structure of the theory was found not to differ for students studying for a master or undergraduate degree. In this respect, verification of the structure of the participant is consistent with the literature. The Turkish version of the scale was found to be valid and reliable and has similar values as the original scale. Although all of these results provide significant evidence for CoI model practice in Turkish culture, a single study may not provide enough evidence; more work is required.

As a result, a highly significant positive relationship with the SP, CP and TP components in OL was found. This situation shows that three components are very important for the construction of CoI. Components are interrelated and if a component's perception increases, the other one is affected in a positive way. This finding is consistent with the literature (Garrison & Anderson, 2003; Garrison et al., 2000; Garrison et al., 2010; Garrison & Cleveland-Innes, 2005; Rourke et al., 1999; Tu, 2000) and shows the necessity of the supportive creation of the components taking into account OL environment.

In the research, TP and CP were found to be important components in terms of learning outcomes such as perceived learning, satisfaction, and willingness to participate in OL. SP did not have a direct effect on the learning outcomes, however, SP had an indirect effect on the learning outcomes because of having relationship with other components. It has been revealed that three components of the CoI framework have a positive effect on learning outcomes. This is consistent with the literature (Akyol & Garrison, 2008; Ke, 2010; Swan & Shih, 2005).

As a result of the research, SP, CP and TP perceptions were found not to differ according to gender. This finding is consistent with the findings of Carlon et al. (2012), Garrison et al. (2010), and Shea et al. (2006), but it conflicts with those of Kim et al. (2011), and Shea and Bidjerano (2008, 2009). The implementation of different environments (e-learning, OL and blended learning) can be shown as the cause of the different research findings. There was no relationship between the ages of the students who participated in the research and the CoI framework components. These findings are also consistent with some other studies (Carlon et al., 2012; Shea et al., 2006; Shea & Bidjerano, 2008, 2009).

There is no significant difference between departments in CoI framework components. This finding is in conflict with the results obtained by Garrison and Arbaugh (2007), Arbaugh et al. (2010), and Carlon et al. (2012) but is consistent with Garrison et al. (2010). This situation may be due to the number of students in the research groups. In their research, Arbaugh and Benbunan-Finch (2005) found that the ideal number of participants in an online class is between 25 and 30 students. This class population is close to ideal for construction of community. The population of participants may affect CoI perceptions.

CoI components did not differ with respect to previous OL experience. This finding is consistent with the research by Carlon et al. (2012). Considering the findings about learning approaches, the deep learning approach has proven to be important for each of the three components. This finding is consistent with Ke's (2010) findings.

Considering all these findings, it may be concluded that deep learning approach is important for CoI framework. In accordance with this result, it is advisable to use the activities which provide OL students with opportunities to use the deep learning approach. Learning activities that develop the framework of CoI (Garrison & Anderson, 2003; Horton, 2011) can be used.

The number of participants in the study was 277, however, examination of relevant studies has shown higher number of student groups (Arbaugh et al., 2010; Shea & Bidjerano, 2009, 2010) and also some of these studies were supported by qualitative data (Burgess et al., 2010; Ke, 2010; Kupczynski et al., 2010). It is very important to be able to obtain evidence for the structure in terms of the applications in Turkey and Turkish culture so future studies should be supported by qualitative data and conducted with more participants.

In this study, as the outcomes of learning, perceived learning, satisfaction and willingness to participate in OL are examined. Future research can be carried out with respect to today's critical skills such as lifelong learning, critical thinking, learning to learn and also participants can be chosen from e-learning and blended learning students with the same or different variables.

One of the other variables is meta-cognitive awareness which can be affected by CoI. Students begin to mature in terms of meta-cognition through explaining,

questioning, clarifying, justifying or providing strategies reciprocally (Akyol & Garrison, 2011). The community supports and provides the maintenance of the CP and TP inquiry, feedback and the routing (Akyol & Garrison, 2011). In further studies, the relationship between students' perceptions of CoI and meta-cognition can be examined.

Annand (2011) notes that there is a need for renewing subcategories of TP and SP classified within the framework of CoI. In this renewal it is stressed whether structure should be suported or not in individual and group learning activities. It can be examined in future research in terms of individual and group teaching models.

In conclusion, this study contributes to the knowledge about the CoI framework and CoI factors according to demographic and learning outcomes. Finally, it highlights that CoI factors affect online learning outcomes.

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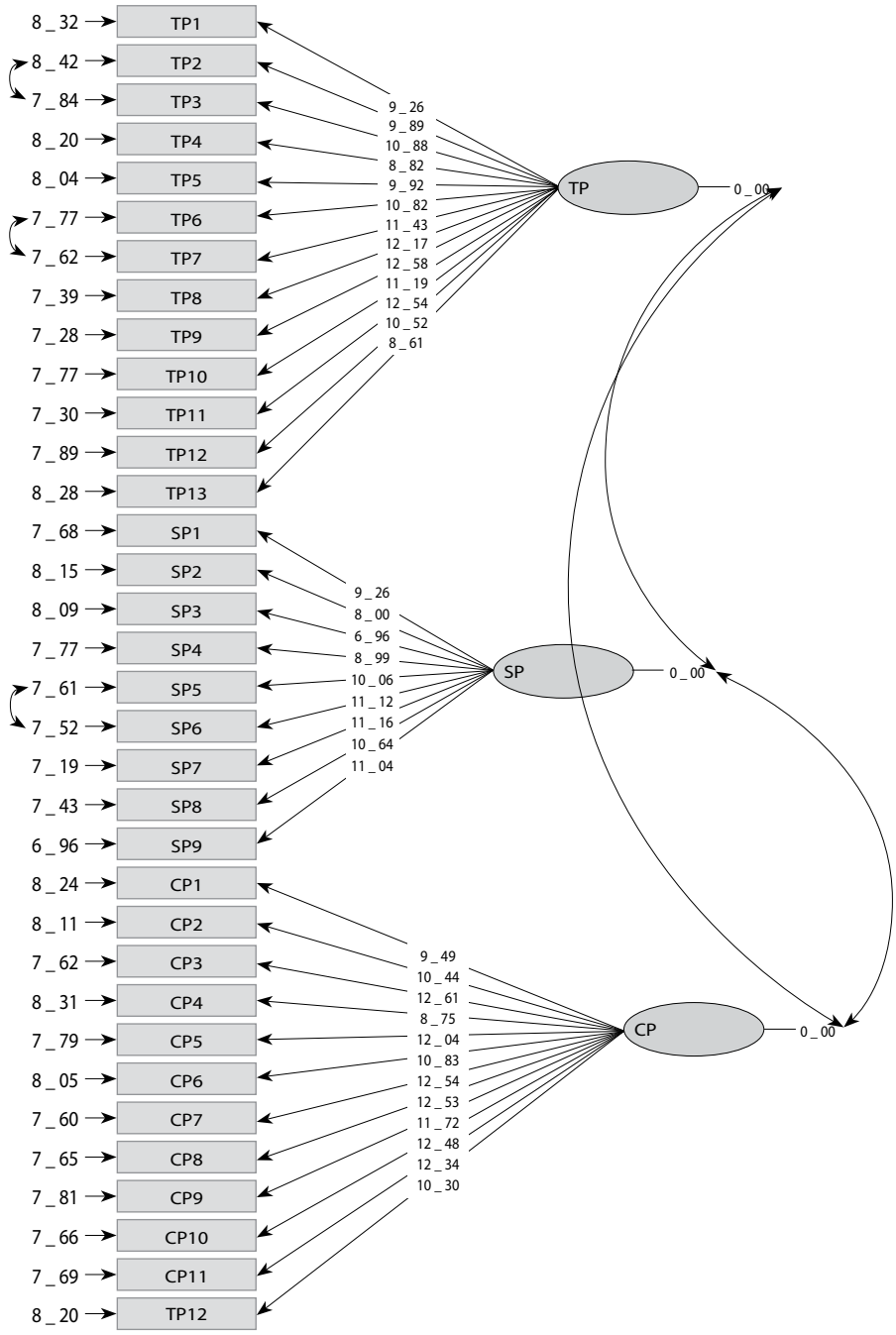
Appendix

Appendix 1. T Values of CoI Scale Confirmatory Factor Analysis



Opažanje istraživačke zajednice polaznika online tečaja utemeljeno na ishodima učenja i demografskim varijablama

Sažetak

Cilj je studije istražiti opažanje istraživačke zajednice polaznika online tečaja utemeljeno na ishodima učenja poput perceptivnog učenja, voljnosti i zadovoljstva, demografskih varijabli kao što su starosna dob, spol, odjel, prethodna iskustva s online učenjem, pristup online tečaju i pristupima učenju. U istraživanju je korištena presječna studija putem ankete. Sudionike istraživanja činilo je 277 online polaznika dodiplomskog studija. Kao rezultat je utvrđena visoka razina pozitivne korelacije između socijalne i kognitivne prisutnosti (r = .751), između kognitivne i nastavne prisutnosti (r = .738) i srednje razine pozitivne korelacije između socijalne i nastavne prisutnosti (r = .683) kod online polaznika. Ustanovljeno je da su podučavanje i kognitivna prisutnost online polaznika važni čimbenici u smislu perceptivnog učenja, zadovoljstva i voljnosti sudjelovanja u online učenju s ostalim učenicima. Prema spolu, odjelu i pristupu online tečaju nije bilo značajne razlike među rezultatima socijalne, kognitivne i nastavne prisutnosti.

Ključne riječi: *kognitivna prisutnost; nastavna prisutnost; perceptivno učenje; socijalna prisutnost; zadovoljstvo.*

Uvod

Online učenje (OL) danas je jedno od najzastupljenijih primjena obrazovanja na daljinu. OL programi započeli su 1997., a povećavali su se i širili velikom brzinom (Lynch, 2002). Kada su OL podaci ispitani, utvrđeno je da je ukupan broj polaznika u 2009. bio 5,6 milijuna. Od 2004. do 2009. ta je brojka porasla za 2,4 milijuna. Danas je većina OL polaznika u visokom obrazovanju (Allen i Seaman, 2010). Studenti u visokom obrazovanju trebaju steći kritičko/kreativno razmišljanje, metakogniciju i vještine samostalnog učenja za korištenje u cjeloživotnom učenju. Kod usvajanja tih vještina interaktivni potencijali *online* učenja, e-učenja, i kombiniranog učenja imaju značajnu ulogu (Garrison i Anderson, 2003). Ekspanzija OL-a privukla je razne nove teorije koje se tiču njegova poboljšanja (Dringus, 2000).

OL treba imati svoje vlastite teorije. Transakcijska udaljenost, jednakost i istraživačka zajednica (CoI) mogu se smatrati najrasprostranjenijima u teorijama o *online* učenju. Među njima se u literaturi često koristi CoI okvir jer je primjeren za moderne aplikacije kao što su *online*, elektroničko i kombinirano učenje.

CoI model

Oblikovan između 1996. i 2001., okvir CoI modela prvi je put predložen i napisan 2000. (Garrison, Anderson, i Archer, 2000; 2010). Teorija je primarno imala za cilj istražiti prirodu idealnog obrazovnog iskustva. Obrazovno iskustvo ima dvije svrhe. Prva je razvijanje značenja uz osobnu perspektivu, druga je rasprava i afirmacija u suradnji tih značenja u zajednici. Predavači trebaju utvrditi kognitivne i socijalne uvjete u skladu s pristupima učenju. U skladu s tim predavači mogu oblikovati bolji CoI ako ispravno udruže i uravnoteže individualne i kooperativne aktivnosti koje potpomažu učenje. CoI stvara okruženje koje doseže zajedničke točke u raspravi vezanoj zu značenje, dijagnosticiranje nesporazuma i omogućavanje preuzimanja odgovornosti za učenje (Garrison, i Anderson, 2003). CoI okvir je model čije su glavne komponente kognitivne, socijalne i nastavne.

Prva je komponenta nastavna prisutnost (TP). Ona uključuje dizajn i potporu socijalnih i kognitivnih procesa koji potpomažu učenje (Swan, Garrison, Richardson, 2009). TP je potrebna kako bi se smanjila transakcijska udaljenost između OL predavača i polaznika (Arbaugh, i Hwang, 2006). S tog aspekta TP komponenta je predstavljena kao metode kojom se koriste predavači za oblikovanje kvalitetnih OL iskustava za podršku i održavanje produktivnog CoI-a (Bangert, 2009). TP uključuje konfiguriranje aktivnosti koje potpomažu učenje i vremena za raspravu (Fabro i Garrison, 1998).

Socijalna prisutnost (SP) je sposobnost dijeljenja u CoI-u korištenjem medija komunikacije preko društvenih i emocionalnih aspekata za njihovo izražavanje (Garrison i sur., 2000). Kada se okruženje oblikuje od pisane riječi, teško je ustanoviti SP. Kognitivna prisutnost (CP) sadrži razvijanje značenja i potvrdu polaznika koji razgovaraju i razmišljaju u kritičnom CoI-u (Garrison, i Anderson, 2003). Elementi, kategorije i pokazatelji CoI okvira predstavljeni su u Tablici 1.

Tablica 1.

Trokomponentna struktura konceptualnog modela stvara kolaborativno *online* podučavanje i konstruktivistički pogled na učenje (Anderson, Rourke, Garrison i Archer, 2001; Garrison i Arbaugh, 2007; Arbaugh, 2008). Stoga se učenje i poučavanje odvija putem dobivanja osobnog značenja i informacije u društvenom procesu (Cleveland-Innes, Garrison, i Kinsel, 2007). Dakle, model pretpostavlja rezultat kooperativnog rada između aktivnih sudionika u obrazovnoj zajednici koja podržava prikladan nastavni tim u *online* okruženju (TP) i odnos jednog prema drugom (SP) uz individualno shvaćanje i značenje u OL-u (Garrison i Arbaugh, 2007).

Jedan je od važnih aspekata teorije međusobna povezanost triju komponenata i čimbenika koji se međusobno povećavaju (Akyol, Garrison, i Özden, 2009). CoI okvir omogućuje učinkovitu strukturu za razumijevanje, oblikovanje i razvijanje iskustva stečenog u obrazovanju (Akyol, Arbaugh i sur., 2009).

Ako *online* predavači žele oblikovati dobar CoI, oni moraju promovirati duboko i trajno učenje (Rovai, 2002; Shea, 2006), proizvesti interakciju s interaktivnim alatima i održati kolaborativno i kooperativno učenje među polaznicima u *scaffolding* konceptu (Garrison i Anderson, 2003; Garrison i sur., 2000; Richardson i Swan, 2003), koristiti se reflektirajućim ispitivanjem i kritičkim istraživanjem (Bangert, 2008), formativnim *feedbackom* u ocjenjivanju (Shea, 2006), oblikovati aktivnosti koje potpomažu učenje utemeljeno na predavaču ili polazniku za različite sadržaje predmeta (Akyol i sur., 2010; Arbaugh i Benbunan-Fich, 2005), razvijati fleksibilnost i individualizirani sadržaj tečaja za različite stilove učenja, voljnost, pristupe učenju i druge individualne razlike (Horzum, 2007, 2011, 2015).

Izrada *online* tečajeva prema CoI okviru ima pozitivan učinak na ishode učenja (Swan, Matthews, Bogle, Boles, i Day, 2012). U istraživanju Akyol i Garrison (2008) ustanovljeno je da su se TP i SP s vremenom značajno promijenile. U tom je smislu značajno mjerenje ovoga okvira i ažuriranje programa na temelju rezultata.

Mjerenje komponenti CoI okvira i njihov odnos

TP ima pozitivan utjecaj na SP i CP u oblikovanju i održavanju u CoI modelu (Garrison, Cleveland-Innes, i Fung, 2010). Shodno tome, TP stvara atmosferu za *oblikovanje* CP-i (Garrison i Cleveland-Innes, 2005) i SP-i (Rourke, Anderson, Garrison, Archer, 1999). Prema Garrison i sur. (2000) sam CP nije dovoljan za održavanje zajednice. Prema tome, SP je vrlo važna za oblikovanje CP-a i CoI-a (Tu, 2000). Rourke i sur. (1999) navode da je potrebna visoka razina SP-a za smisleno i duboko OL. Međutim, također je naglašeno da prekomjerna SP negativno utječe na učenje kao i bilo što drugo u prekomjernoj količini. U tom pogledu idealna razina SP-i je krucijalna za CP (Garrison i Anderson, 2003).

Nakon uvida u istraživanja Col-a utvrđeno je da su za mjerenje modela korišteni kvalitativni i kvantitativni mjerni alati. Neka su od navedenih istraživanja testirala strukturu oblikovanu uz pomoć Col okvira s faktorskom analizom, uz pomoć ljestvice (Arbaugh 2007, Arbaugh, i Hwang 2006; Arbaugh et al., 2008;. Bangert 2009; Carlon et al. 2012; Swan et al., 2008; Shea, i Bidjerano 2009; Garrison et al., 2004, 2010; Garrison, i Arbaugh 2007; Arbaugh, Bangert, i Cleveland-Innes, 2010). U tim se studijama pokušava postaviti model kao samoizvješće s česticama koje pripadaju trima komponentama modela. Prema drugoj studiji, Col struktura testirana je tako što su polaznici bili pitani o važnosti stavki i komponenti ljestvice za model (Diaz, Swan, Ice, i Kupczynski, 2010). Osim toga, postoje studije koje potvrđuju strukturu prema kvalitativnim i kvantitativnim podacima putem ispitivanja odgovarajućih polaznika u elektroničkom sustavu (Burgess, Slate, Rojas-LeBouef, i LaPrairie, 2010; Ke, 2010; Kupczynski, Ice, Wiesenmayer, i McCluskey, 2010).

Među CoI istraživanjima postoje studije koja ispituju jednu komponentu modela kao, npr. SP (Gunawardena, i Zittle, 1997; Rourke et al., 1999), modela CP (Garrison, i Cleveland-Innes, 2005; Shea, i Bidjerano, 2009) i modela TP (Ice, Curtis, Phillips, i Wells, 2007; Shea, Li, Swan, i Pickett, 2005), a tu su i studije koje ispituju sve komponente (Arbaugh, 2007, 2008; Burgess et al., 2010; Diaz et al., 2010). U mnogim studijama koje ispituju cijeli okvir potvrđena je trokomponentna struktura okvira CoI-a (Arbaugh, 2007, 2008; Bangert, 2009; Shea, 2006; Shea i Bidjerano, 2009, Garrison i dr., 2010). Osim toga, tu su i studije koje su ispitivale odnos između komponenata strukture. U većini tih studija komponente imaju pozitivan utjecaj ili se međusobno predviđaju (Akyol, Garrison, et al., 2009; Archibald, 2010; Bangert, 2008; Conrad, 2009; Garrison et al., 2010; Jo, Lim i Kim, 2011; Shea i Bidjerano, 2008, 2009, 2010).

Okruženje u kojem učenici uče i alati kojima se koristilo također su među elementima koji utječu na opažanje komponenti modela. Prema Traphagan i dr. (2010) alati, zadaci i usklađivanje skupine utječu na CP-i, SP-i i TP-i. S tim je u vezi važno da se CoI okvir mjeri za određen program. Garrison i Anderson (2003), Nagel i Kotzé (2010) rekli su da teorija ima velik utjecaj na e-učenje i da je u pozitivnom smislu podržavana. Teorija je također vrlo učinkovita u kombiniranom učenju (Garrison i Kanuka, 2004). Akyol i dr. (2009) tvrde da su neke komponente modela također razvijene još više u kombiniranom učenju. Osim toga, tu su i studije koje pokazuju da CoI komponente imaju visok stupanj u *online* okruženjima (Akyol, Garrison i dr. 2009). U studiji Burgess i dr. (2010) podaci su dobiveni u nazočnosti strukture CoI-a u procesima sakupljenim u *Second Life* (Drugom Životu). U istraživanju Shea i dr. (2010) podaci su dobiveni u prisutnosti CoI strukture analizom sadržaja u okruženju društvene mreže.

U nekim je istraživanjima utvrđeno da različite kulture kojima polaznici pripadaju utječu na CoI model. Skalu koja se koristila u brojnim istraživanjima oblikovali su Arbaugh i sur. (2008). Za dokazivanje valjanosti strukture modela u različitim kulturama i ispitivanje odnosa među komponentama ljestvice važno je razvijanje turske inačice.

Odnos između komponenata CoI okvira, ishoda učenja i demografskih varijabli

Komponente CoI okvira povezane su s ishodima učenja, većinom s perceptivnim učenjem, stavom, metakognicijom i zadovoljstvom. TP je povezana s perceptivnim učenjem i zadovoljstvom (Swan i Shih, 2005). Osim toga, postajala je pozitivna značajna korelacija između socijalne interakcije polaznika, opažanja zajednice i zadovoljstva (Ke, 2010). Akyol i Garrison (2008) pronašli su sličan odnos između TP-i, CP-i, perceptivnog učenja i zadovoljstva. Unatoč drugim rezultatima, Akyol i Garrison (2008) nisu našli značajnu povezanost SP-i i perceptivnog učenja. Da bi se potvrdili suprotni rezultati tih istraživanja, treba provesti mnogo više studija o okviru CoI-u, zadovoljstvu i perceptivnom učenju.

U CoI literaturi su spol, starosna dob i odjel komponente koje su najviše povezane s CoI komponentama. Kada su ispitane studije o varijabli spola, utvrđeno je da postoji razlika CoI komponenti prema spolu (Kim, Kwon, i Cho, 2011; Shea i Bidjerano, 2008, 2009), a ne postoji razlika prema spolu (Carlon et al. 2012; Garrison et al., 2010; Shea, Li, i Pickett, 2006). Nisu pronađene značajne razlike vezane uz starosnu dob (Carlon et al. 2012; Shea et al., 2006; Shea i Bidjerano, 2008, 2009). Ali Akyol, Ice, Garrison i Mitchell (2010) otkirili su da su mladi u dobi od 18 do 22 godine i starije osobe u dobi od 48 do 62 godine smatrali da su CP i TP ista komponenta. Ta situacija pokazala je da se model sastoji od dvije umjesto tri komponente u tim dobnim skupinama. Model s tri komponente dobiven je u rasponu od 23 do 37 godina. To pokazuje različite rezultate o opažanju komponenti s obzirom na starosnu dob. Zbog kontradiktornih rezultata u istraživanjima s obzirom na starosnu dob i spol potrebno je više studija koje će uzeti u obzir navedene varijable.

Odjel i razred (stupanj) također su varijable koje su povezane s komponentama CoI-a. U mnogim studijama na tu temu bilo je razlika u CoI komponentama prema odjelima polaznika. U tim istraživanjima CoI model je označen kao prikladniji u primijenjenim oblastima (Arbaugh et al., 2010). Carlon i dr. (2012) utvrdili su da se TP nije razlikovala prema odjelu, već su SP i CP varirali po odjelu. Također je utvrđeno da nema značajne razlike u pogledu magistarskog i dodiplomskog studija. Akademska je razina u izravnoj vezi s TP-om (Shea i Bidjerano, 2008). Osim toga, CP se nije razlikovala prema odjelu (Garrison i dr., 2010) i nije bilo značajne razlike između TP, SP i CP prema razredu (stupnju) (Shea i Bidjerano, 2009). U drugoj studiji struktura s tri čimbenika dogodila se neovisno o odjelu i razredu (stupnju) (Akyol i dr., 2010). Rezultati pokazuju da odjel i razred (stupanj) nemaju utjecaja na opažanje CoI-a.

Uza sve to je utvrđeno da se opažanje razreda (stupnja) razlikuje kada uzmemo u obzir polaznike koji su zaposleni (Shea et al., 2006) i ima negativnu korelaciju s površnim učenjem (Ke, 2010). Carlon i dr. (2012) utvrdili su da iskustvo na tečaju utječe na SP, ali ne i CP i TP.

Cilj studije

U studiji koja ispituje istraživanja koja se odnose na CoI Garrison i Arbaugh (2007) su istaknuli da bi daljnja istraživanja trebala biti interdisciplinarnog i kvantitativnog tipa, kao i da bi se mogle stvoriti prilike za istraživanja koja omogućuju odnos između pokaznih komponenti i ishoda učenja u područjima izvan obrazovanja. To je vrlo važno ispitati u daljnjim studijama (Arbaugh et al., 2010).

Istraživanje ima tri glavna cilja. Prvo je prijevod CoI ljestvice (Arbaugh i dr., 2008) koja se obično koristi u CoI istraživanjima na turski jezik. S tim ciljem istražit će se ima li ljestvica tri komponente strukture u OL-u, radnu skupinu i turski jezik. Drugo treba istaknuti postoji li veza između komponenti CoI-a i perceptivnog učenja, zadovoljstva i voljnosti za OL (ishodi učenja). Zatim treba istražiti bilo kakvu razliku u opažanju komponenti okvira prema demografskim varijablama (starosna dob, spol, odjel, prethodna iskustva s *online* učenjem, pristupi učenju).

Metodologija

Istraživački model

Istraživanje je planirano i provedeno s pomoću presječne studije putem ankete koja je jedna od metoda istraživanja. Model presječne studije je istraživanje u kojem su varijable mjerene odmah i samo jednom (Fraenkel i Wallen, 2006). Opažanje polaznika OL-a vezano uz CoI i ostale varijable istraživanja mjerena su samo jednom.

Ispitanici

Ispitanike je činilo 290 *online* studenata diplomskog studija upisanih u 9 različitih odjela na Sakarya Sveučilištu u Turskoj. Link upitnika objavljen je u forumu studentskog sustava za poslovanje učenjem (LMS). Dobrovoljni ispitanici ispunili su ljestvicu na internetu. Stoga se koristi lo prigodno uzorkovanje. Upitnici koji nisu bili valjani isključeni su iz analize, a u analizu su bili uključeni podatci 277 ispitanika. S obzirom na spol utvrđeno je da su 92 ispitanika (33.2%) bile žene, a njih 185 (66.8%) bili su muškarci. 39 ispitanika (14.1%) prethodno je sudjelovalo u programu obrazovanja na daljinu, a njih 238 (85.9%) nije sudjelovalo u programu obrazovanja na daljinu. Kada je ispitan odjel ispitanika, pokazalo se da ih je 26 (9.4%) u administraciji, 32 (11.6%) u jedinicama lokalne samouprave i urbanizma, 35 (12.6%) u informacijskim tehnologijama, 28 (10.1%) u povijesti, 29 (10.5%) u javnim financijama, 37 (13.4%) u javnoj upravi, 29 (10.5%) u upravljanju informacijskim sustavima, 30 (10.8%) u upravljanju elektroničkim inženjeringom, a 31 (11.2%) u e-MBA diplomskim studijima. Kada su ispitani pristupi učenju ispitanika, utvrđeno je da 34 (12.3%) nemaju ni duboke ni površne (D-S-), 113 (40.8%) ima duboke (D + H-), 21 (7.6 %) ima površne (D-S +) i 109 (39.4%) ima obje, i duboke i površne (D + H +) pristupe učenju. Starosna dob ispitanika bila je u rasponu od 21 do 48 godina, pri čemu je prosjek (± SD) bio 30.76 (± 5,26) godina za cjelokupan uzorak. Kada je starosna dob kategorizirana, 7 ispitanika (2.5%) je u starosnoj dobi u rasponu od 18 do 22, 241 (87%) od 23 do 37 i 29 (20.5%) od 38 do 48.

Instrumenti

U istraživanju su se koristile četiri različite ljestvice: CoI, perceptivno učenje, zadovoljstvo i volja da se nastavi OL. Dodana su i pitanja poput spola, starosne dobi, odjela i pristupa učenju.

CoI Ljestvica. CoI ljestvica sastojala se od 34 stavke koje sadrže 3 dimenzije na Likertovoj ljestvici od 5 točaka. Ljestvicu su razvili Arbaugh i dr. (2008), a istraživač je prilagodio turskom jeziku. Istraživač je najprije putem *e-maila* dobio odobrenje kreatora za prilagodbu ljestvice. Nakon toga je ljestvica prevedena na turski jezik. Potom je pripremljena struktura ljestvice koja je uključivala izvornu, prevedenu i predloženu verziju, a nakon toga je na procjenu dana petorici stručnjaka. Jezična ekvivalencija studija ljestvice provedena je nakon adaptacije. 20 diplomiranih studenata ispunilo je inačicu ljestvice na turskom i engleskom jeziku u intervalu od jednog

tjedna. Dvije verzije prihvaćene su kao ravnopravne s obzirom na to da je korelacija između njih za SP bila 0,83; CP 0,82 i TP 0,81. Štoviše, istraživačke i potvrdne faktorske analize provedene su da bi se ispitala izvorna struktura ljestvice odobrena od turske kulture. Koeficijent unutarnje konzistencije (Cronbach Alpha) iznosio je 0,97.

Ljestvica Perceptivnog Učenja (PLS). PLS se sastojala od jednog čimbenika i 5 čestica na Likertovoj ljestvici od 5 točaka. Ljestvicu su razvili Horzum, Demir Kaymak i Canan Güngören (2015). Dok se ljestvica razvijala, koristila se deskriptivna faktorska analiza. 64% ukupne varijance objašnjeno je stavkama. Faktor opterećenja stavki bio je u rasponu od 0.87 do 0.90. Koeficijent unutarnje konzistencije inačice na turskom jeziku iznosio je .92.

Ljestvica Zadovoljstva (SS). SS se sastojala od jednog čimbenika i 9 stavki na Likertovoj ljestvici od 5 točaka. Tu su ljestvicu razvili Gunawardena i Zittle (1997), a Horzum (2015) ju je prilagodio turskom jeziku. Potvrdna faktorska analiza pokazala je da ljestvica ima odgovarajuće indekse (χ^2/df=2.13, RMSEA=0.075, AGFI= .90, GFI=0.95, CFI=0.99, NFI=0.99 i NNFI=0.99). Koeficijent unutarnje konzistencije iznosio je .95.

Ljestvica Voljnosti (WS). WS se sastojala od dva čimbenika i 10 stavki na Likertovoj ljestvici od 5 točaka. Ljestvicu su razvili Horzum i Çakır (2012). Dok se ljestvica razvijala, korištene su deskriptivna i potvrdna faktorska analiza. Potvrdna faktorska analiza pokazuje da ljestvica ima odgovarajuće indekse (χ^2/df=2.71, RMSEA=0.047, SRMR= 0.030, AGFI= .96, GFI=0.98, CFI=0.99, NFI=0.99 i NNFI=0.99). 65% ukupne varijance objašnjeno je stavkama. Koeficijent unutarnje konzistencije iznosio je .90.

Analiza podataka

Centar za obrazovanje na daljinu Sakarya sveučilišta, u kojem su studenti bili službeno uključeni u program, dao je dopuštenje za njihovo sudjelovanje u ovoj studiji. Podaci su prikupljeni putem upitnika objavljenog na internetu. Da bi se odredili odnosi i razlike između varijabli, u ovom su istraživanju upotrijebljeni Pearsonov koeficijent korelacije, regresija, nezavisni t-test i ANOVA. Te su analize provedene s pomoću računalnog statističkog programa.

Rezultati

Na prvom su mjestu prikazani zaključci koji se odnose na valjanost i pouzdanost studije. Deskriptivna i potvrdna faktorska analiza provedene su da bi se dokazala konstruktivna valjanost ljestvice. S obzirom na to da ljestvica ima ukupno 34 stavke, utvrđeno je da ima strukturu od tri čimbenika. Faktor opterećenja 34 stavke bio je u rasponu od 0,51 do 0,77. Osam čimbenika ljestvice objašnjava 67,63% ukupne varijance. Rezultati pokazuju da ljestvica dobro objašnjava okvir CoI-a diplomiranih studenata. Potvrdna faktorska analiza provedena je da bi se istražilo koliko je model podataka zapravo odgovarajuć. Odgovarajući indeksi ljestvice s 34 stavke koja sadrži tri čimbenika testirani od CFA. Rezultati CFA pokazali su da su sve t vrijednosti

značajne u 0,05 (predstavljeno u Prilogu 1). Rezultati su prikazali sljedeće indekse: χ^2/df=1.74, RMSEA=0.071, GFI=0.85, CFI=0.98, NFI=0.96 i NNFI=0.98. Kad su istraživani odgovarajući indeksi ljestvice, uočeno je da su bili unutar prihvatljivog raspona.

Radi utvrđivanja valjanosti ispitana je konvergentna i diskriminantna valjanost. Konvergentna je valjanost utvrđena s pomoću prosječne izlučene varijance (AVE). AVE rezultati za TP, SP i CP komponente bili su 0,57; 0,52 i 0,62. Budući da su rezultati iznad 0,50, konvergentna valjanost skale je prihvatljiva. Rezultati diskriminantne valjanosti za TP, SP i CP komponente bili su 0,76; 0,72 i 0,79. Rezultati diskriminantne valjanosti su viši od 0,50 pa je konvergentna valjanost skale prihvatljiva (Fornel i Larcker, 1981).

Pouzdanost ljestvice ispitana je koeficijentom unutarnje konzistencije i kompozitne pouzdanosti. Otkriveno je da je Cronbach Alpha koeficijent .97 za cjelokupnu ljestvicu. Vrijednosti pouzdanosti za SP, CP i TP čimbenike je bila .90, .94 i .94. Kompozitna valjanost za SP, CP i TP bila je .91, .95, and .95. Koeficijenti unutarnje konzistencije prikupljeni za ljestvicu pokazali su da su unutar prihvatljivog raspona. Ljestvica, prilagođena u ovom istraživanju, pokazala se kao valjana i pouzdana i može se koristiti za određivanje okvira CoI-a. Utvrđeno je da je verzija prilagođena turskom jeziku u skladu s izvornom verzijom u pogledu konzistencije čimbenika i strukture. Utvrđeno je da je ljestvica prikladna turskoj kulturi.

U ovom istraživanju ispitane su CoI komponente i rezultati srednjih vrijednosti podkategorija. Utvrđeno je da je srednji rezultat za komponente TP, (±SD) 3,83 (±0,77), dizajn i organizacija (±SD) 3,97 (±0,79), kategorija potpore 3,81 (±0,84) i rezultat sredine kategorije izravnog podučavanja iznosio je 3,70 (±0,92). Te brojke pokazuju da su za ispitanike srednje vrijednosti kategorija vezanih uz TP blizu jedna drugoj.

Utvrđeno je da je srednji rezultat CoI komponente, SP, (±SD) 3,79 (±0,75), kategorija afektivnih izražavanja (±SD) 3,70 (±0,85), kategorija otvorene komunikacije 3,90 (±0,86) i srednji rezultat kategorije kohezivne grupe 3,77 (±0,83). Te brojke pokazuju da je otvorena komunikacija za ispitanike u prvom planu.

Otkriveno je da je srednji rezultat CoI komponente CP, (±SD) 3,80 (±0,79), kategorija pokretanja događaja (±SD) 3,77 (±0,89), kategorija eksploracije 3,83 (±0,91), kategorija integracije 3,79 (±0,94) i srednji rezultat kategorije rezolucije 3,83 (±0,82). Te brojke pokazuju da su za ispitanike eksploracija i rezolucija u prvom planu. Sve tri komponente daleko su iznad prosjeka. Provođenje aktivnosti koje potpomažu učenje, u smislu komponenti koje su učinkovite u stvaranju obrazovnog iskustva, pokazalo je pozitivne rezultate.

Ostali rezultati istraživanja su odnos između CoI komponenti, predviđanje komponenti perceptivnog učenja, zadovoljstva i voljnosti, pregled podčimbenika u okviru Co-a u pogledu spola, starosne dobi, odjela, prethodna iskustva s *online* učenjem i pristupi učenju. Odnos između CoI komponenti ispitan je analizom korelacije. Rezultati su prikazani u Tablici 2.

Tablica 2.

Pronađena je značajna visoka ili srednja pozitivna korelacija između Col komponenti. Rezultati pokazuju da kada jedna od Col komponenti raste, ona potiče i rast u drugim Col komponentama. Isto vrijedi i za pad neke od komponenti. Višestrukom regresijom ispitano je jesu li perceptivno učenje, zadovoljstvo i voljnost sudjelovanja u *online* učenju predviđeni CoI komponentama ili nisu. Analiza višestruke linearne regresije je pokazala da je perceptivno učenje OL polaznika povezano s TP-i i CP-i ($F_{(3, 273)}$=77.48, p<.05). Koeficijent višestruke korelacije za analizu regresije je .41. ≈16.9% od ukupne varijance u rezultatima polaznikova perceptivnog učenja objašnjeno je TP-i i CP-i. TP (β=0.22, t= 3.11, p< .05) i CP (β=0.47, t=6.16, p= .05) pojavile su se kao značajni prediktori u modelu.

Druga analiza višestruke linearne regresije je pokazala da je zadovoljstvo povezano s TP-i i CP-i ($F_{(3, 273)}$ = 77.48, p <.05). Koeficijent višestruke korelacije za regresijsku analizu je .69. ≈46% ukupne varijance u rezultatima zadovoljstva objašnjeno TP (β = 0.22, t = 3.11, p < .05) i CP (β = 0.47, t = 6.16, p = .05) koje su se pojavile kao značajni prediktori u modelu.

Treća analiza višestruke linearne regresije pokazala je da je voljnost povezana s TP-i i CP-i ($F_{(3, 273)}$ = 78.80, p <.05). Za analizu regresije koeficijent višestruke korelacije iznosi .68. ≈46% ukupne varijance u rezultatima voljnosti objašnjeno TP-i i CP-i. TP (β = 0.14, t = 2.04, p < .05) i CP (β = 0.59, t = 7.80, p = .05) su se pojavili kao značajni prediktori u modelu.

Prema rezultatima analize regresije TP i CP su predstavljene kao glavne komponente u smislu perceptivnog učenja, zadovoljstva i voljnosti. CP je najvažnija od navedenih komponenti. SP ne utječe izravno na osnovne ishode učenja iako je povezana s drugim komponentama.

T-test nezavisnog uzorka je proveden da bi se usporedile CoI komponente prema spolu. Rezultati su prikazani u Tablici 3.

Tablica 3.

Utvrđeno je da ne postoji značajna razlika (p>.05) u SP-i ($t_{(275)}$=-0.49), CP-i ($t_{(275)}$=-0.45) i TP ($t_{(275)}$=-0.53) prema spolu. Da bi se ispitao odnos između komponenata CoI-a i starosne dobi polaznika, koristila se analiza korelacije. Također je utvrđeno da nije bilo značajnog odnosa između starosne dobi polaznika i SP-i (r = 0.03), CP-i (r = 0.04), TP-i (r = 0.03).

Provedena je jednosmjerna ANOVA da bi se usporedile komponente CoI-a po polaznikovim odjelima. Rezultati pokazuju da nema značajne razlike (p>.05) u SP-i ($F_{(8-268)}$=1.02), CP-i ($F_{(8-268)}$=1.49) i TP-i ($F_{(3-975)}$=1.56) prema odjelu. Štoviše, proveden je još jedan t-test neovisnog uzorka da bi se usporedio CoI prema pristupu OL-u. U konačnici, SP ($t_{(275)}$=-0.50), CP ($t_{(275)}$=0.94) i TP ($t_{(275)}$=-0.18) se nisu značajno razlikovali (p>.05) prema pristupu OL-u. Provedena je još jedna jednosmjerna ANOVA za komponente CoI-a po pristupima učenju. Rezultati su prikazani u Tablici 4.

Tablica 4.

Utvrđeno je da se SP ($F_{(3,273)}$= 20.69), CP ($F_{(3,273)}$= 16.70) i TP ($F_{(3,273)}$= 20.69) značajno razlikuju prema pristupima učenju polaznika OL-a. Kako bi se utvrdili pristupi učenju koji stvaraju te razlike, proveden je test višestruke usporedbe Tukey. Rezultati ispitivanja analizirani su pojedinačno u smislu komponenti okvira CoI-a.

U istraživanju je utvrđeno da polaznici OL-a koji preferiraju duboke (D+S-) ($\overline{X}$= 52.31) i duboke i površne (D+S+) ($\overline{X}$= 51.51) pristupe učenju imaju statistički veći rezultat SP-i od površnih (D-S+) ($\overline{X}$= 42.91) i pristupa učenju koji nisu ni površni ni duboki (D-S-) ($\overline{X}$=40.27). Osim toga, nije pronađena razlika u smislu SP-i između dubokih i dubokih i površinskih, površinskih i ni površinskih, ni dubokih pristupa učenju. Ti rezultati pokazuju da studenti koji preferiraju duboki pristup učenju imaju više rezultate SP-i u OL.

Utvrđeno je da su polaznici OL-a s dubokim (D+S-) ($\overline{X}$=35.66) i dubokim i površnim (D+S+) ($\overline{X}$=35.21) pristupima učenju imali više rezultate CP-i od površinskih (D-S+) ($\overline{X}$=29.76) i pristupa učenju koji nisu ni površinski, ni duboki (D-S-) ($\overline{X}$=28.35). Osim toga, nije pronađena razlika između dubokih i dubokih i površinskih, površinskih i ni površinskih, ni dubokih pristupa učenju u smislu CP-i. Taj nalaz pokazuje da polaznici s dubokim pristupom učenju imaju više rezultate CP-i u OL-u.

Štoviše, pronađeno je da su polaznici OL-a s dubokim (D+S-) ($\overline{X}$= 48.58) i dubokim i površnim (D+S+) ($\overline{X}$= 47.88) pristupima učenju imali više rezultate TP-i od površinskih (D-S+) ($\overline{X}$=38.10) i pristupa učenju koji nisu ni površinski, ni duboki (D-S-) ($\overline{X}$=33.38). Zatim je ustanovljena razlika između površinskih i ni površinskih, ni dubokih pristupa učenju u smislu TP-i. Polaznici OL-a koji preferiraju površinsko učenje imaju statistički više rezultate TP-i nego oni koji ne preferiraju ni površinski, ni duboki pristup učenju. Ti rezultati pokazuju da studenti koji preferiraju duboki ili površinski pristup učenju imaju više rezultate TP-i u OL-u.

Rasprava

OL je jedan od najčešće korištenih obrazovnih programa na daljinu danas. Iako je OL uobičajen, stope odustajanja od istog jednako su visoke kao u drugim programima za učenje na daljinu (Lee i Choi, 2010). Te je probleme moguće riješiti *oblikovanje*m vlastitih teorija o obrazovanju na daljinu (Keegan, 1996). Okvir CoI-a je jedan od tih teorija. Okvir je izražen strukturom od tri komponente koja osigurava stvaranje obrazovnog iskustva u OL-u, konfiguracije osobnog značenja i kolektivnih značenja sa zajednicom (Anderson, Rourke, Garrison, i Archer, 2001).

U istraživanju je testirana CoI ljestvica (Arbaugh et al., 2008) koja je razvijena da bi izmjerila strukturu triju komponenti i provjereno je postoji li slična u turskoj kulturi. Kao rezultat istraživanja prikazana je struktura od tri čimbenika s 34 stavke. Također je utvrđeno da su tri komponente ljestvice kod ispitanika bile iznad prosjeka. Ta situacija pokazuje da aktivnosti OL-a daju pozitivne rezultate u kreiranju obrazovnog iskustva ispitanika. U tom pogledu dobiveni rezultati su u skladu sa studijama koje

naglašavaju tri komponente strukture teorije (Anderson et al., 2001; Garrison et al., 2000; Garrison i Anderson, 2003; Garrison i Arbaugh, 2007; Arbaugh, 2008) i ističući da u OL-u postoji teorijski okvir (Swan et al., 2012; Akyol i Garrison, 2008). Osim toga je utvrđeno da je okvir CoI-a sličan teoriji u pogledu turske kulture i ispitanika.

Godine i razred (stupanj) vrlo su važni u smislu okvira CoI-a. Promjena starosne dobi osobito utječe na opažanje komponenti Col-a. Osnovni razlog može se povezati s polaznikovim izvornim digitalnim atributima i tehnološkom osjetljivosti na koju je utjecala starosna dob. Upoznavanje procesa i sustava povećava se povećanjem razreda (stupnja). Ispitanike predstavljaju skupine studenata diplomskih studija koji imaju prosječnu starosnu dob od oko 30 godina. U studijama Akyol i dr. (2010) istaknuto je da je dobiven model od tri komponente kod starosne dobi u rasponu od 23 do 37 godina. U istraživanju Carlon i dr. (2012) uočeno je da se struktura teorije ne razlikuje za studente magistarskog ili dodiplomskog studija. U tom pogledu verifikacija strukture ispitanika je u skladu s literaturom. Osim toga je utvrđeno da je turska inačica ljestvice valjana i pouzdana i da ima slične vrijednosti kao izvorna ljestvica. Sve to predstavlja važne dokaze za aplikacije modela CoI-a u Turskoj. Međutim, jedno istraživanje ne može pružiti dovoljno dokaza; potrebno je više istraživanja.

Kao rezultat je uočen vrlo značajan pozitivan odnos između SP, CP i TP komponenti u OL-u. Ta situacija pokazuje da su tri komponente jako važne za *oblikovanje* CoI-a. One podržavaju jedna drugu i povećanje jedne komponente će pozitivno utjecati na drugu komponentu. Taj je nalaz u skladu s literaturom (Garrison i Anderson, 2003; Garrison et al., 2000; Garrison et al., 2010; Garrison i Cleveland-Innes, 2005; Rourke i dr., 1999; Tu, 2000) i pokazuje nužnost stvaranja komponenti koje uzimaju u obzir okruženje OL-a u kojem polaznici uče.

U istraživanju je utvrđeno da su TP i CP važne komponente u pogledu ishoda učenja poput perceptivnog učenja, zadovoljstva i voljnosti sudjelovanja u OL-u. No, SP nije imala izravni utjecaj na ishode učenja. Međutim, u istraživanju je utvrđeno da SP ima posredan utjecaj na ishode učenja jer je povezana s drugim komponentama. U tom je smislu otkriveno da tri komponente okvira CoI-a imaju pozitivan efekt na ishode učenja. To je u skladu s literaturom (Akyol i Garrison, 2008; Ke, 2010; Swan i Shih, 2005).

Kao rezultat istraživanja otkriveno je da se opažanja SP-i, CP-i i TP-i ne razlikuju po spolu polaznika OL-a. Taj je nalaz u skladu s nalazima Carlon i dr. (2012) Garrison i dr. (2010) i Shea i dr. (2006), ali u sukobu s nalazima Kim i dr. (2011), Shea i Bidjerano (2008, 2009). Implementacija različitih okruženja (e-učenje, OL i kombinirano učenje) može biti prikazana kao uzrok različitih rezultata istraživanja. Nije pronađena veza između starosne dobi polaznika koji su sudjelovali u istraživanju i komponenti okvira CoI-a. Ti su rezultati u skladu s istraživanjima (Carlon i dr., 2012; Shea i dr., 2006; Shea i Bidjerano, 2008, 2009.

U istraživanju ne postoji znatna razlika između odjela u smislu komponenti okvira CoI-a. Taj je nalaz u sukobu sa studijama Garrison i Arbaugh (2007), Arbaugh i dr.,

(2010) i Carlon i dr. (2012), ali je u skladu sa studijom Garrison i dr. (2010). Razlog za to može biti broj studenata u istraživačkim skupinama. Arbaugh i Benbunan-Finch (2005) su u svom istraživanju pronašli idealan *online* razred između 25 i 30 učenika. To se može izraziti kao idealan broj za *oblikovanje* zajednice na broj učenika u odjelu. Broj sudionika može utjecati na percepciju Col-a.

Otkriveno je da se komponente CoI-a ne razlikuju u sudjelovanju u OL-u u prošlosti. Taj nalaz je u skladu s istraživanjem Carlon i dr. (2012). Razmatrajući rezultate o pristupima, dokazano je da je duboki pristup učenju važan za svaku od tri komponente. Taj je nalaz u skladu s istraživanjem Ke (2010).

S obzirom na sve rezultate utvrđeno je da je duboki pristup učenju važan za okvir CoI-a. U skladu s tim rezultatom poželjno je da se koriste aktivnosti koje omogućavaju polaznicima OL-a da se koriste dubokim pristupom učenju. Mogu se koristiti aktivnosti koje potpomažu učenje i koje razvijaju okvir CoI-a (Garrison i Anderson, 2003; Horton, 2011).

Ispitanike u istraživanju čini 277 studenata. Kada se ispituju relevantne studije, uočen je velik broj skupina studenata (Arbaugh et al., 2010; Shea i Bidjerano, 2009, 2010) i dodatno prikupljanje kvalitativnih podataka (Burgess i dr., 2010; Ke, 2010; Kupczynski i dr., 2010). Vrlo je važno dobiti dokaze za strukturu u smislu aplikacija u Turskoj i turskoj kulturi zbog čega bi buduća istraživanja trebalo potkrijepiti kvalitativnim podacima i većim brojem ispitanika.

U ovoj su studiji kao ishodi učenja ispitani perceptivno učenje, zadovoljstvo i voljnost sudjelovanja u OL-u. U narednim studijama mogu se provesti istraživanja vezana za kritičke vještine danas, poput cjeloživotnog učenja, kritičkog razmišljanja i učenja kako učiti. Ispitanici mogu biti odabrani iz E-učenja i povezanog učenja, a mogu se koristiti različite varijable.

Jedna od ostalih varijabli je metakognitivna svijest na koju je utjecao CoI. Polaznici počinju sazrijevati u smislu metakognicije putem objašnjavanja, ispitivanja, razjašnjavanja, opravdavanja ili uzajamnog pružanja strategija (Akyol i Garrison, 2011). Zajednica podupire i osigurava održavanje istraživanja kognitivne i nastavne prisutnosti, *feedbacka* i usmjeravanja (Akyol i Garrison, 2011). U narednim studijama može se ispitati odnos između opažanja polaznika CoI-a i metakognicije.

Annand (2011) navodi da je potrebna obnova podkategorija TP-i i SP-i klasificiranih u okviru CoI-a. U ovoj je obnovi istaknuto da je važno ako struktura mora biti pod kontrolom, a ne u individualnim ili grupnim aktivnostima koje potpomažu učenje. U tom smislu u budućim istraživanjima može se ispitati u pogledu individualnog i grupnog modela podučavanja.

U konačnici, ovo istraživanje doprinosi spoznajama o okviru CoI-a i čimbenika CoI-a prema demografskim čimbenicima i ishodima učenja. Štoviše, istaknuo je da čimbenici CoI-a utječu na ishode *online* učenja.