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EMOTIONAL PRESENCE IN ONLINE LEARNING SCALE: A SCALE DEVELOPMENT STUDY

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ABSTRACT

Although emotions are not a new topic in learning environments, the emerging technologies have changed not only the type of learning environments but also the perspectives of emotions in learning environments. This study designed to develop a survey to assist online instructors to understand students' emotional statement in online learning environment. This survey aimed for online instructors to understand what or how their students' can reflect their feelings and also whether they are able to transfer their emotions in online learning. The last version of the survey has 21 items and 2 subfactors which are "Giving Emotions" and "Receiving Emotions". The factor analysis results showed that Cronbach Alpha for Giving Emotion was .86, for Receiving Emotions was .79 and for the total survey was .88. This Likert type survey is a five-point survey is Tukish and takes 10 minutes to complete.

Keywords: **Emotional presence, survey, online learning**

INTRODUCTION

Education is a way to understand your students' needs and their expectations, teaching is a path to let students know what the real life brings them as issues to solve; and learning is a reaction of what students want to know or what they have experienced. Although, learning looks like a complex process, this complexity is not about its difficulties; it is all about the details of learning. Learning process comes with many variables such as students, teachers, learning environments and so on. One of the critical variables of learning is students' needs, because education starts with better understanding students. It is essentially important to know how students learn and how students feel about interaction between their peers and instructors in the learning environment. Instructors should know students' emotional presence to communicate with them efficiently. Emotions are the colors of human communication (Perikos & Hatzilygeroudis, 2013). Therefore, it is expected that emotions play critical roles in education, such as promoting students' motivation (Rienties & Rivers, 2014; Kim, Park & Cozart, 2014), engaging students in learning tasks and materials (Linnenbrink-Garcia, Rogat & Koskey, 2011; Chen & Wu, 2015), increasing students' satisfaction (Zembylas, 2008; Cho & Heron, 2015), and making communication meaningful between teachers and students in online learning environments (Sarsar, 2014). Although emotion in learning is a well-established topic in traditional classroom settings, it is a relatively new topic in online learning. Emotional presence by/with technology started to blossom couple of years ago. Cleveland-Innes and Campbell (2012, p.283) defines emotional presence "is the outward

expression of emotion, affect, and feeling by individuals and among individuals in a community of inquiry, as they relate to and interact with the learning technology, course content, students, and the instructor." Emotional experiences are also related presence (sense of being) in online environment (Diemer, Alpers, Peperkorn, Shiban & Muhlberger, 2015).

Emotion in learning is a key to understand what and/or how students express their feelings for being understood in online learning environments. Some of learning environments are easier to recognize students' emotions more than other environments, such as online learning environments. Face to face learning environments have many indicators to understand students` emotions; however, online learning environments have some barriers and challenges to recognize students' emotions (Sarsar, 2014). Cleveland-Innes, Garrison and Kinsel (2007) mentioned that emotion is a part of student adjustment to be an online learner. Hence, the first step for being an online learner is to know how to be an online learner. These feelings let and lead students to be more comfortable in learning environments both online and face to face. However, there are limited studies on understanding students` emotion in online learning environments (Marchand & Gutierrez, 2012). Especially text based learning environments (Sarsar, 2014).

Students are using emotions strategically (Phirangee & Hewitt, 2015), hence instructors should know how these strategies might change or support their online teaching process. Phirangee & Hewitt (2015) highlighted that students can engage more efficiently by expressing the emotion, therefore some instructors should improve their online teaching skills to promote more effective online learning.

Hascher (2010) highlighted that a little about emotion and learning have been known, so students' emotions might be related with different variables such as personal characteristics or environmental reasons. However, it is very important to know whether it is necessary to reveal students' emotions in learning process. If online instructors believe that emotions need to be known during the learning process, they might experience with some challenges. One of the main challenges to determine students` emotions in online learning environments is to answer this following question: How can online instructors understand students' emotions? Unfortunately, there are limited studies have been done for answering this question.

Researchers have used different methodologies to know students' emotions by using qualitative, quantitative and mixed methods. Rienties and Rivers (2014) mentioned that there were main methods of data analysis to measure and understand students' emotion such as content analysis, natural language processing and behavioral indicators.

Sarsar (2014) used mixed method design to understand the students' reflections on emotional motivational feedback messages. In their study, emotional content strategies and motivational strategies were combined into feedback strategies for a text based online learning environment. Cleveland-Innes and Campbell (2012) used discussion transcripts and a survey of questions regarding students' online experiences. Cleveland-Innes and Campbell (2012) suggested adding emotional presence as the fourth category into Community Inquiry (CoI) framework. Therefore, they created a 6-item-survey and added these items into 35-item CoI Survey. One of the other ways to understand emotions is to identify behavioral indicators in online discussions (Rienties, Tempelaar, Giesbers, Segers & Gijselaers, 2014).

The studies showed that it is not easy to measure students' emotion in online learning (Rienties & Rivers, 2014). Reflecting and receiving emotions in online learning might be difficult for both teachers and students (Artino, 2010). Therefore more research on emotions in online learning needed (Artino, 2012; Cleveland-Innes & Campbell, 2012).

According to Rienties and Rivers (2014) the number of quantitative data collection tools are limited. Achievement emotions questionnaire (Pekrun, Goetz, Frenzel, Barchfeld & Perry, 2011), Widener emotional learning scale (Wang, Young, White, & Marczyk, 2010), and Higher Education emotions scale (White, 2012) are most cited quantitative data collection tools for measuring or understanding emotional statements. These studies focus on understanding students' emotion or emotional behaviors. Different from present studies, this current study aims to understand what students think about emotional interaction in online learning environments. This survey also helps to provide information which students are ready to reflect and receive emotional messages in online learning environments. The results of this survey will be able to give evidences to teachers for determining how their students would like to be taught and communicated or in which ways that they can transfer their emotions in online learning. Also, there is limited research on qualitatively measuring emotional statements in online learning in Turkish litereature, therefore, this survey might serve to fill this gap in Turkish literature.

METHODOLOGY

The process of creating survey was explained in details under this section. The purpose of the current study was to create a scale for understanding students' emotional presence and the ability of transferring their emotions in online learning environments. Therefore, the process of this study was structured to investigate the reliability and validity of the scale.

Participants

This study was conducted at a large public research university in Western Turkey during the spring semester in 2013-2014 academic calendar. There were 229 students who participated this study voluntarily. 163 of the participants were female (71%) and 66 of them were male (%39) and the average age of participants was 25 years old. On the average, they used internet approximately for 10 years and they spend 2-3 hours of a day by using Internet.

The Steps of Creating the Survey

Researchers followed ten steps for creating the survey: (i) literature review, (ii) question-pool, (iii) draft survey items, (iv) expert view, (v) modify draft survey items, (vi) survey form, (vii) pilot study 1- data collection, (viii) item analysis, (ix) modify and finalize the survey.

- ***Literature Review:*** **The current literature and studies related to emotional presence and emotional transfer were read and the main issues on emotional presence in online learning were determined. During the literature review process, the studies focused on measuring and understanding emotion in different environments were listed. However, according the literature review were made by the authors; there was limited studies related emotional presence in online learning.**
- ***Question-pool:*** **The question pool was created considering by literature on emotional transfer strategies. The 97 questions were written for measuring students' emotional presence. Researchers wrote the questions under two categories (giving and receiving emotions) and collected them in the same question-pool.**
- ***Draft Survey Items:*** **The doubled and overlapped items were deleted from the initial pool. The draft survey was formed with 46 items. The draft survey form was created for experts to decide which question measure students' emotion presence in online learning environment. For this reason, form was categorized into 3 sections for each question such as "Accepted", "Not Accepted" and "Should be modified".**
- ***Expert review:*** **Eleven experts from different and related disciplines attended this study. Expert team consisted on one associated professor and three assistant professors from Guidance and Psychological Counseling Department; two assistant professors from Communication Department; two assistant professors and three**

research assistants from Computer Education and Instructional Technology Departments. After expert teams' view, the items were modified considering their recommendations and advices.

- ***Modify Draft Survey Items:*** **According to experts' views, 10 items were deleted, 4 items were modified. The second version of the survey was formed with 36 items under 2 subcategories: Receiving Emotions and Giving Emotions.**
- ***Create the Survey Form:*** **The second version of survey form created as a 5-likert type survey form for measuring and understanding students' emotions on their statements of emotional presence in online learning environments. This Likert type survey is a five-point survey such as Thoroughly Agree, Agree, Neutral, Disagree, and Thoroughly Disagree.**
- ***Pilot Study 1- Data Collection:*** **There were 229 students who completed the survey which took approximately 10 minutes for each student. According to Tabachnick & Fidell (2001) the amount of 229 participants is adequate to create the survey.**
- ***Item Analysis:*** **CFA (confirmatory factor analysis) EFA (exploratrory factor analysis) and relaibility analysis was applied and detailed under Findings section. Statistical analysis of data was performed using SPSS 19.0 and LISREL 8.72 software. For the reliability of the survey, Cronbach's Alpha of internal consistency coefficient was calculated. Varimax factor rotation solution was applied and 0.30 rule has been accepted for factor loading of the survey. The principal components analysis was used for exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) is performed to test the accuracy of the construct.**
- ***Modifying and Finalizing the Survey:*** **After the analysis part, the survey was consisted of 21 items with 2 factors: Receiving Emotions and Giving Emotions. The total Cronbach Alpha was calculated .88.**

FINDINGS

In this section the findings of calculating validity and reliability of the survey, which is called Emotional Presence in Online Learning Environments, were explained.

Exploratory Factor Analysis Results

Exploratory factor analysis (EFA) results are shown under this topic for representing the construct validity of the survey and determine factor loadings. Before starting the process of EFA, negative items are coded adversely. Furthermore, Kaiser-Meyer-Olkin (KMO) coefficient test and Bartlett Sphericity test were used for testing the goodness of fit between the data and factor analysis. KMO is calculated as .86 and result of Bartlett Sphericity (x^2=2069.2, p=0.000) test was found significant (George and Mallery, 2011). According to results of CFA, survey design is classified under 8 factors. Descriptive variances of these factors are 59.38%.

According to analysis; 15 items that factors loadings under .30, unloaded to any factors and overlapped values of the items which are around .1, are excluded. EFA was repeated with the 21 items by considering the factor numbers, literature studies and the purpose of study. According to result of the analysis, factors' loadings of items are shown in Table 1.

Table: 1
Factors' Loadings

	Factor 1		Factor 2			
Item	**EFA***	**CFA****	**EFA***	**CFA****	**t*****	**R^2**
M8	.666	.64			10.30	.41
M10	.706	.70			11.53	.49
M12	.729	.70			11.43	.48
M17	.551	.49			7.49	.24
M20	.614	.44			6.55	.19
M23	.704	.75			12.69	.56
M24	.344	.40			5.95	.16
M25	.661	.67			10.88	.45
M28	.427	.47			6.99	.22
M30	.594	.53			8.14	.28
M34	.477	.54			8.31	.29
M35	.528	.65			10.47	.42
M1			.317	.35	5.05	.12
M3			.648	.61	9.43	.37
M9			.451	.50	7.39	.25
M13			.481	.39	5.63	.15
M14			.615	.53	8.03	.29
M16			.798	.72	11.70	.52
M27			.532	.61	9.37	.37
M32			.596	.49	7.23	.24
M36			.682	.71	11.37	.50

*** Factor loading for EFA**
**** Factor Loading for CFA**
***** Estimated t-value using CFA (t)**

Table 1 shows the factor loadings of factor analysis, CFA and estimated t value. According to Table 1, t values are statistically significant. The survey form was consisted of 21 items and 2 factors, of which factor loads changed between 0.317 and 0.798. the scale explains 40.31% of the total variance.

The first factor was consisted of 12 items and the range of items loadings changed from .344 to .729. This explains 32.21% of total variance. The first factor was formed to understand the emotions in online learning environments and titled "Receiving Emotions". The second factor was consisted of 9 items and the range of items loadings changed from .317 to .798. This explains 8.1% of total of variance respectively. The second factor was formed to reflect emotions in online learning environments and titled "Giving Emotions".

The results of analysis showed that the factors presented high accuracy on their compatibilities and consistencies with estimated factors at the beginning of the analysis. In addition, the analysis for determining the relation between the correlation of collected data and factors was shown in Table 2. According to the results, factors had a significant relation with each other.

Table: 2
Correlation coefficient between Factors

Factors	Receiving emotions	Giving emotions
Receiving emotions	1	.71*
Giving emotions		1

*** p <.01**

Confirmatory Factor Analysis

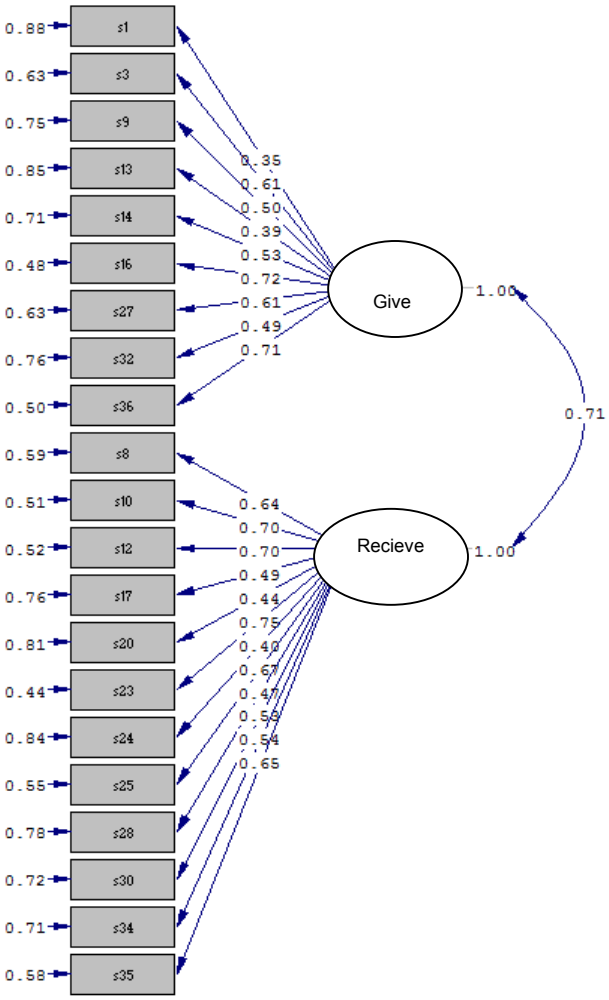
Confirmatory factor analysis (CFA) has been conducted for confirming the structure which has been found with EFA. Results of the CFA are presented in Table 2. Acceptable indexes according t Schermelleh-Engel ve Moosbrugger'e (2003) is shown below.

Table: 3
Statistical values as to confirmatory factor analysis

	X^2	X^2/df	*RMSEA*	*S-RMR*	*GFI*	*AGFI*	*CFI*
Structure with two factors	265.17	1.43	0.044	0.055	0.90	0.88	0.98
Acceptable Fit Index			.05<RMSA<.10	.05<SRMR<.1	.90<GFI<.95	.85<AGFI<.90	.90<CFI<.95
Good Fit Index		<3	<.05	<.05	>.95	>.90	>0.95

RMSEA : Root Mean Square Error of Approximation
GFI : Goodness of Fit Index
AGFI : Adjusted Goodness of Fit Index
S- RMR : Standardized RMR
CFI : Comparative Fit Index

According to Schermelleh-Engel et al. (2003), Kline (2005) and Hooper et al, (2008), GFI, AFGI, S-RMR values were found the range of acceptable values and RMSEA and also X^2/df values were found in the acceptable range. The path diagram as to the confirmatory factor analysis is given in Figure 1.



Chi-Square=265.17, df=185, P-value=0.00010, RMSEA=0.044

Figure: 1
Path Diagram

To sum up, Emotional Presence in Online Learning Environments Scale has been concluded as two- factors. The results of the confirmatory factor analysis support construct validity of the scale.

Result of the Reliability Analysis

Cronbach alpha and internal reliability score were calculated to determine the reliability of Emotional Presence in Online Learning Environments Survey. The Cronbach alpha of the survey was.88. The Cronbach alpha of the Giving Emotion factor was.79 and the Cronbach alpha of the Receiving Emotion factor was .86. Therefore, it shows that the survey's internal reliability is considered in the acceptable range (Buyukozturk, Kilic-Cakmak, Akgun, Karadeniz & Demirel, 2011).

CONCLUSION

The purpose of the current study was to create a survey to be used for understanding students' views on transfer their emotions in online learning environments. This survey might help instructors to know their students better in terms of understanding their emotional statements. Emotions give clues to instructors how/what their students would like to do in the class. Finalized version of the survey had 21 items and 2 subcategories. These subcategories are "Giving Emotions" and "Receiving Emotions". The factor analysis results showed that Cronbach Alpha for Giving Emotion was .86, for Receiving Emotions was .79, and for the total survey was .88. The survey was found to be a reliable and valid instrument considering the study population.

This Likert type survey is a five-point survey such as Thoroughly Agree, Agree, Neutral, Disagree, and Thoroughly Disagree. The language of this survey is Tukish and takes 10 minutes to complete. Under two factors, six items of the survey were shown in Table 4. First three items give examples of giving emotions and last three items give examples of receiving emotions. All items of this survey are self-reported; therefore it has the same limitations with other self-report surveys.

It might be a good start before an online course to decide the efficent communication and interaction ways during the course. It is important for instructors to understand their students' thoughts on emotional transfer in online learning environments (Sarsar & Kisla, 2013). This might help/assist students to be more motivated by knowing whether they are comfortable to receive and give their emotion in online learning environments especially text based environments, because emotions are one of the keys to motivate students (Wang et al, 2010).

Table: 4
Item Samples

Factors	Item (Original)	Item (Translated)*
Giving	Çevrimiçi öğrenme ortamlarında mutluluğumu rahat ifade ederim.	I can express my happiness in online learning environments.
Giving	Çevrimiçi öğrenme ortamlarında duygularımı istediğim şekilde ifade edebilirim.	I can express my feelings by the way I like in online learning environments.
Giving	Korkumu çevrimiçi öğrenme ortamlarında iletişim kurduğum kişilere aktarırım.	I can express my fear to person whom I contact with in online learning environments.
Receiving	Çevrimiçi öğrenme ortamlardaki iletişim kurduğum kişilerin neşeli olduğunu anlarım.	I can understand the feelings of the people whom I contact with are happy in online learning environments.
Receiving	Çevrimiçi öğrenme ortamlarında iletişim kurduğum kişilerin duygularına dikkat ederim.	I notice the feeling of the people whom I contact with in online learning environments.
Receiving	Çevrimiçi öğrenme ortamlarında iletişim kurduğum kişilerin üzgün olduğunu anlarım.	I can understand the feelings of the people whom I contact with are sad in online learning environments.

*** These items translated from Turkish to English. The language validity hasn't been checked.**

It is not easy to measure all emotions not only in traditional face to face learning environments but also in online learning environment. If the instructors communicate with their students by understanding their feelings momentarily or generally, it might help to create strong communication between students and instructors. Therefore, students might feel closer to their instructors. Sarsar (2014) highlighted that emotional motivational communications such as feedback made students comfortable to talk to their instructors. According to literature,

there are limited studies to measure students' emotions and their effects in online learning environment. These studies used qualitative, quantitative and mixed method designs to understand students' emotion. The majority of these studies focused on students' emotion during the learning process. However, students might not be comfortable or unexperienced to transfer their emotions online. Understanding students' thoughts to transfer emotions in advance or before starting a course might be more useful for designing the course.

Spatial presence, involvement and realness are the components of presence (Schubert, Friedmann & Regenbrecht, 2001), therefore, it might be assumed that emotional presence is to be emotionally spatial presence, involvement and realness. According to literature review, Rienties & Rivers (2014) highlighted that there were around 100 negative, positive or neutral emotions in online environments. It might be a challage for online intructors to understand and/or measure students' emotional presence. In this current study, it was focused to assist online instrcutors to cope with this challenge by recognizing their students' emotions. This survey gives evidence if the students are ready to receive and give their emotions online, however it doesn't provide any solutions. The solutions or teaching startegies should be created or designed by the online instructors, because at the end of designing process, instructors should decide the ways in which they would like to teach.

As it was mentioned before, there are many ways to interact between instructors and students in online learning environment. This survey serves (i) to provide evidences about students' emotional presence, (ii) to assists online instructors for determining efficient ways of communication, and (iii) to helps instructors for recognizing their students' communicational skills.

It is believed that this survey will provide different aspects of online teaching in the literature, because there is limited research on emotional presence in online learning. Results of new studies will reveal new information and experiences on this topic. Therefore, researches on emotional presence are needed and researchers should focus on this specific topic to give more evidence in online learning.

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