# A CROSS CULTURAL PERSPECTIVE ON INFORMATION COMMUNICATION TECHNOLOGIES LEARNING SURVEY

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**ABSTRACT**

In this study, the "Information Seeking Strategies" scale that was developed by Mills, Knezek and Wakefield (2013) has been adapted to Turkish language. A confirmatory factor analysis was run and subsequently, two items were removed. The fact that these two items are related to learning in a traditional class environment may be interpreted in such a manner that the participants prefer online environments. As a result of the analysis of the items, it has been observed that ICT tools are employed for information seeking rather than information sharing.

**KEYWORDS**

ICT learning, scale adaptation, validity, reliability, information seeking, information sharing

## 1. INTRODUCTION

As technology develops, the storage of and access to information is also transforming. Information, once accessed via printed material and then transferred onto digital media such as computers, CD-ROMs, and DVD-ROMs, has now become accessible anywhere and by everyone, owing to internet technologies.

Researchers study the information and communication technologies (ICT) through various aspects. Its' effects on learning in various contexts have been the subject of numerous studies. In this respect, researchers have also examined ICT learning on the basis of information searching and information sharing concepts. ICT is instantaneous and mobile providing equality of voice, access and communication in real time. Via ICT everyone has a voice and this causes informational convergence and pollution, intended or not (Kuhlthau, 2010).

Guided inquiry is important in this process in which information is structured. Guided Inquiry bring a different approach to teaching and learning information literacy (Kuhlthau, Maniotes, & Caspari, 2007). the main concepts of locating, evaluating and using information, which can be transferred to wide range of situations of information seeking and use, are learned by student (Kuhlthau, 2010).

Guided inquiry is a planned process which progresses towards goals and is executed by means of inquiry. The Information Search Process (ISP) model explains the thoughts, actions and emotions in six stages. These stages are initiation, selection, exploration, formulation, collection, and presentation. Model of the ISP is presented in Figure 1.

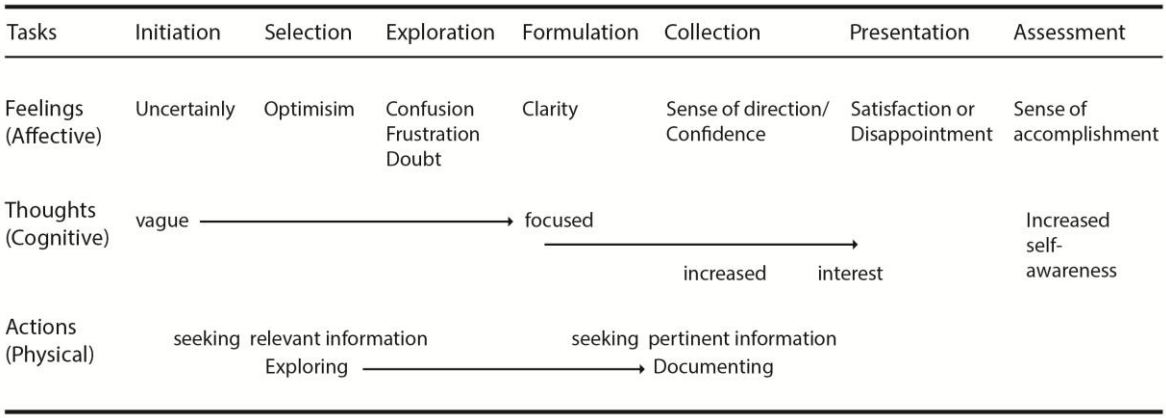


Figure 1. Model of information search process (Kuhlthau, 2004)

Individuals perform active interpretation through the framework of their personal points of view. While this may not be the same for every individual, the information obtained from various sources resembles the individual's present information. Formal information sources and informal ones acquired through experiences in daily life engage in continuous interaction (Kuhlthau, 1991).

Particularly in relation to education, it is very important for students to ensure that the information they find is appropriate, reliable and relatively the most qualified, as well as to search and reach information on the internet which they use as the primary source of information for their homework, projects, and presentations. On the other hand, it is frequently stated that it is very hard for both students and instructors to find correct and reliable information on the web, and that the expected quality is seldom achieved (Mazman & Aşkar, 2013).

## 1.1 Aim of the Study

ICTL scale was developed to allow research on how students choose to interact with ICT tools in relation to educational information seeking and sharing. In this study, the "Information Seeking Strategies" scale that was developed by Mills, Knezek and Wakefield (2013) has been adapted to the Turkish language and it is aimed to test how this scale, which was originally applied in the USA, works on a sample in Turkey.

# 2. METHODOLOGY

## 2.1 Data Collection Tool and Process

The ICT Learning survey was developed by Mills, Knezek and Wakefield (2013) as part of a psychometrics course. The goal of the scale is to determine how students use ICT tools with respect to educational information seeking and sharing (Mills, Knezek & Wakefield, 2013).

The scale contains 15 items and 2 factors, 'Information Seeking' and 'Online Information Sharing'. The scale is a 5 Likert type, ranked from "1-Strongly disagree" through "5-Strongly agree".

Prior to translation into Turkish, the required permission was obtained from the authors.. It was then translated into Turkish language by 3 people. A form, which was developed on the basis of the translations, was then translated back into English by a linguist. Finally, the researchers determined the best expression for each item. The scale was delivered to students via e-mail and through social media.

## 2.2 Participants

A total of 148 participants from various universities and departments in Turkey took part in the study. The demographic data for the participants are listed in the Table 1 below.

Table 1. Demographic variables of participants.

| Variables | | Frequency | Percent |
|---|---|---|---|
| Gender | Female | 110 | 76.9 |
| | Male | 33 | 23.1 |
| Age | 18-25 | 114 | 79.7 |
| | 26-35 | 25 | 17.5 |
| | 36-40 | 4 | 2.8 |

The numeric data regarding the participants' intended use of the internet are given in Table 2.

Table 2. Participants' internet usage purposes

| Usage Purposes | N | Min | Max | $\overline{X}$ | S |
|---|---|---|---|---|---|
| For home works | 143 | 1 | 3 | 2.14 | 0.83 |
| For personally | 143 | 1 | 3 | 2.40 | 0.74 |
| For area of interests | 143 | 1 | 3 | 2.47 | 0.77 |

As the analysis regarding intended use is examined, it is observed that participants use the internet primarily for their own areas of interest ( $\overline{X}$ = 2.47), then, for their personal studies ( $\overline{X}$ = 2.40) and finally for searching in connection with their homework and projects ( $\overline{X}$ = 2.14).

## 2.3 Data Analysis

SPSS 17.0 and LISREL 8.7 software were used to analyze the data. During the scale adaption process, confirmatory factor analysis (CFA) was employed with LISREL 8.7.

Before CFA, the normal distribution of data was checked and the outliers were determined. Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) and Bartlett's Test of Sphericity tests were tested in order to determine whether the sample was adequate. The KMO and Barlett Test of Sphericity results are given in Table 3.

Table 3. KMO and Barlett Test of Sphericity results

| | | |
|---|---|---|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | 0.764 |
| Bartlett's Test of Sphericity | Chi-Square | 469.241 |
| | df | 105 |
| | Sig. | .000 |

Results of KMO and Bartlett's Test of Sphericity show that data has been fit for the analysis.

# 3. FINDINGS

The original scale has two dimensions:information seeking and online information sharing. Primarily, a first level confirmatory factor analysis was performed to test whether this structure is validated in our sample.The values obtained as a result of the analysis [$\chi^2$ (89, N=143) = 173.01, p<.000, RMSEA= 0.082, S-RMR= 0.085, GFI= 0.86, AGFI= 0.81, CFI= 0.87, NNFI= 0.84, IFI= 0.87] indicated that the model did not fit well, in other words, did not confirm the original factorial structure. Thus, goodness of fit statistics and modification indexes were examined and it was decided that a number of items were to be removed from the scale. It was observed in the path diagram that the t value of items 9 (t= -1.31) and 12 (t=0.05) were not statistically significant.

The analysis was repeated for the remaining 13 items. According to this analysis, it was observed that [$\chi^2$ (64, N=143) = 141.91, p<.000, RMSEA= 0.093, S-RMR= 0.087, GFI= 0.87, AGFI= 0.81, CFI= 0.88, NNFI= 0.85, IFI= 0.88] the model did not show a good fit. At this stage, the modification connections suggested in the analysis results were applied and the analysis was re-run. The modification connections were established for between Item 7 and Item 4, Item 10 and Item 8, Item 11and Item 8, Item 11and Item 10, Item 14 and Item 10. Consequently, the values [$\chi^2$ (59, N=143) = 87.12, p<.000, RMSEA= 0.058, S-RMR= 0.064, GFI= 0.91, AGFI= 0.87, CFI= 0.95, NNFI= 0.94, IFI= 0.95] indicated that the model was in good fit. Table 4 compares the standard adaptability criteria (Schermelleh-Engel, Moosbrugger & Müller, 2003) and research results.

Table 4. Comparison of standart goodness of fit indices and research results

| Fit Measure | Good Fit | Acceptable Fit | Model Measures |
|---|---|---|---|
| $\chi$2/df | 0≤ $\chi$2/df ≤2 | 2≤ $\chi$2/df ≤3 | 1.48 |
| RMSEA | 0≤ RMSEA ≤0.05 | 0.05≤ RMSEA ≤0.08 | 0.058 |
| S-RMR | 0≤ S-RMR ≤0.05 | 0.05≤ S-RMR ≤0.10 | 0.064 |
| IFI | 0.95≤ IFI ≤1.00 | 0.90≤ IFI ≤0.95 | 0.95 |
| NNFI | 0.97≤ NNFI ≤1.00 | 0.95≤ NNFI ≤0.97 | 0.94 |
| CFI | 0.97≤ CFI ≤1.00 | 0.95≤ CFI ≤0.97 | 0.95 |
| GFI | 0.95≤ GFI ≤1.00 | 0.90≤ GFI ≤0.95 | 0.91 |
| AGFI | 0.90≤ AGFI ≤1.00 | 0.85≤ AGFI ≤0.90 | 0.87 |

Connection diagram according to first level CFA (standardized solution) is presented in Figure 1. t-values connection diagram is also presented in Figure 2.

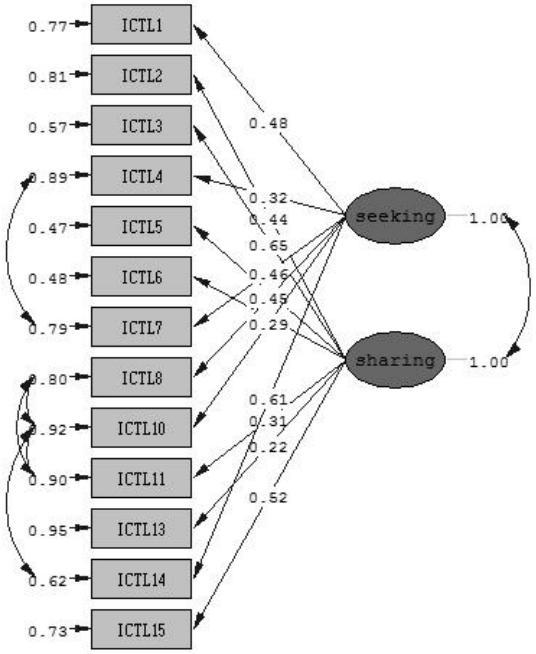


Figure 1. Standardized Solution

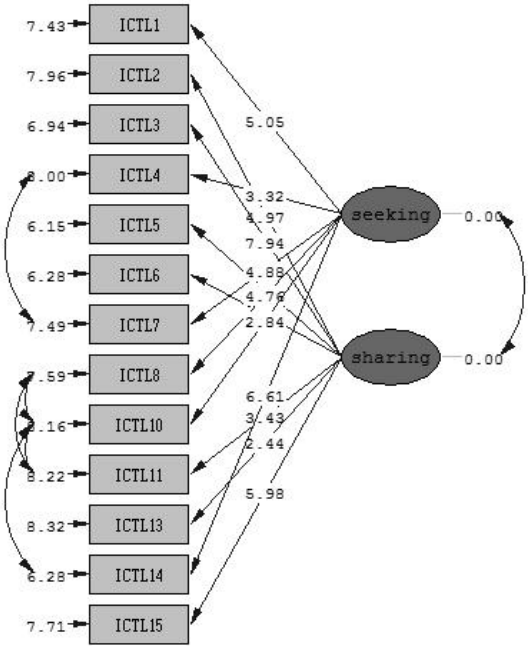


Figure 2. t values

The Cronbach's α value, the scale's reliability coefficient, was found to be 0.79. This value indicates that the scale is reliable. The Cronbach's α coefficients regarding the factors are given in Table 5.

Table 5. Reliability test result

| Factors | Cronbach α |
|---|---|
| Information Seeking (Items 1, 4, 7, 8, 10, 14) | 0.62 |
| Information Sharing (Items 2, 3, 5, 6, 11, 13, 15) | 0.71 |

## 4. CONCLUSION

ICT has become an element that affects our learning and working in the fields of education, economy, politics and society. New skills, new information and new ways of learning have become prominent within these dynamic environments. Inability to adapt to these environments leads to complications, disappointment, and possible failure. ICT teaching has gained importance in order to ensure creativity and interpretation.

The 15 item ICTL scale developed by Mills, Knezek and Wakefield (2013) was applied in a sample from Turkey and finalized as a 13 item form to be used in Turkish setting. The scale's validation and reliability were tested and subsequently, two items were removed. The fact that these two items are related to learning in a traditional class environment may be interpreted in such a manner that the participants have a preference for online environments. As a result of the analysis of the items, it has been observed that ICT tools are employed for information seeking rather than information sharing.

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