

# PREDICTORS OF SELF-REGULATED LEARNING SKILLS OF COMPUTER EDUCATION AND INSTRUCTIONAL TECHNOLOGY (CEIT) STUDENTS

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**Abstract:** In this correlational survey study, it was aimed to determine significant predictors of self-regulated learning skills of Computer Education and Instructional Technology (CEIT) students. The sample consisted of 458 CEIT students registered at some universities among the ADIM Universities Consortium in Turkey. As data collection tools, the “Web Pedagogical Content Knowledge Scale” which was developed by Lee, Tsai & Chang (2008) and adapted to Turkish by Horzum (2011), the “Curriculum Orientations Inventory” which was developed by Cheung and Wong (2002) and adapted to Turkish by Eren (2010), and the “Self-Regulated Learning Scale” which was developed by Turan (2009) were used in the study. Descriptive statistics, correlation and path analysis were used in analyzing data. Findings showed that there were low, medium and high significant correlations found among sub-factors. Path analysis results showed that academic and technological orientations of CEIT students were significant predictors of attitude toward web-based instruction. Results also showed that curriculum orientations and attitudes toward web-based instruction were significant predictors of self-regulated learning skills.

**Keywords:** CEIT students, web pedagogical content knowledge, curriculum orientations, self-regulated learning skills, path analysis

**Selami Uysal, MS**

PhD Candidate

Adnan Menderes University,  
Curriculum & Instruction Dept.  
Aydın,  
Turkey

Contact:

E-mail: selami.uysal@adu.edu.tr

ORCID: 0000-0001-5020-806X

**Kerim Gündoğdu, PhD**

Full Professor

Adnan Menderes University,  
Curriculum & Instruction Dept.  
Aydın,  
Turkey

Contact:

E-mail: gundogduk@gmail.com

ORCID: 0000-0003-4809-3405

## INTRODUCTION

Teachers have some beliefs about how to design and implement the curriculum. Curriculum orientations are an important concept in understanding the thoughts of teachers about curriculum elements and classroom practices (Cheung and Wong, 2002). It is observed in the related literature that the concepts of curriculum orientations, curriculum beliefs, curriculum ideologies and educational value orientations are used synonymously. There is no common terminology for these expressions, which are basically supported by similar studies (Cheung and Wong, 2002, Eren, 2010). According to Cheung and Wong, the curriculum orientation concept can be described as a common belief system about curriculum components. In this study, the concept of curriculum orientation was used.

It is seen that educators have different orientations to curriculum as well as the researchers who study curriculum orientations. It can be said that although curriculum orientations are handled in different classifications and different forms, these forms have similar characteristics. Eisner and Vallance's (1974) classification scheme consists of five curriculum orientations: academic rationalism, cognitive processes, social reconstruction-relevance, self-actualization and curriculum as technology. McNeill (1996) classifies curriculum orientations as a four-factor structure including academic, technological, humanistic and social reconstructionist factors. In the Cheung and Wong (2002) classification which was followed in this research, curriculum orientations consist of a five-factor structure including academic, cognitive processes, social reconstruction, humanistic and technological factors.

The *academic orientation* is one of the oldest and most basic approaches used in the curriculum orientation classification. This approach argues that the main function of the school is to encourage the intellectual development of students on certain issues (Eisner, 1985). This orientation, which was popular between 1930 and 1950, lost its popularity a little after the 1950s (Bay et al., 2012). Students are expected to behave like a physicist, mathematician or historian in this approach where it is important to acquire new and important content

and knowledge in various academic disciplines in the program (Cheung and Wong, 2002). The *cognitive processes orientation* focuses on the learning process rather than the subject content, contrary to the academic orientation. Implemented programs and instructional strategies should support the development of cognitive processes of the students (Eisner, 1985). According to this approach, high-level cognitive process skills, especially transferable skills, are more important in the learning process. Teachers should plan the time needed to help students improve their problem-solving skills (Cheung and Wong, 2002). The *social reconstructionist orientation* regards the school program as a means of facilitating social change. In this orientation, students are given the opportunity to learn critically while analyzing the social problems that mankind faces. The curriculum emphasis is on group experiences, sense of social responsibility, and the development of critical awareness of students (Cheung and Wong, 2002).

The *humanist orientation* is based on a humanist approach, humanist psychology and child-centered education (Bybee and Welch, 2012). In this orientation, students are seen as the most important source of the curriculum, and the integration of the cognitive processes (intellectual knowledge and skills) and the affective domains (emotion, attitude and value) of learners are the main priorities of this orientation (Cheung and Wong, 2002). The *technological orientation*, which was influenced by the behaviorist approach, is based on systematic curriculum planning and teaching efficiency. This orientation argues that school curricula should be prepared according to pre-determined learning objectives (Cheung and Wong, 2002). The organization of the curriculum content is done in logical order, and it is recommended that teachers use computer-supported instruction (Cheung and Wong, 2002).

The first type of knowledge that teachers focused on during the teaching phase was content knowledge. However, the question of how to deliver content to learners remained behind. Shulman (1986) described a new definition under the title of "*Pedagogical Content Knowledge*"

(PCK), suggesting that teaching should not focus solely on content knowledge, and that content and the way it is given are in interaction with each other. With the development of technology in the following years, Mishra and Koehler (2006) added

the concept of technology to PCK, and made a new definition under the name of “*Technological Pedagogical Content Knowledge*” (TPCK). Lee, Tsai, and Chang (2008) described “*Web Pedagogical Content Knowledge*” (WPCK), a specialized form of technological pedagogical content knowledge which considers the fact that the web technologies must develop and that the web-based teaching knowledge of teachers must be at a high level.

In the nineteenth century, learning was regarded as an official discipline, and the failure of learners in learning was thought to be caused by personal limitations such as lack of intelligence and diligence. Some reformers and progressive educators, such as John Dewey, E. L. Thorndike and Maria Montessori, thought that it would be appropriate to group the students homogeneously according to their age and skills so that the curriculum could be adapted to individual differences. In the studies conducted after the last quarter of the twentieth century, researchers based individual differences among students on the lack of self-regulation skills of students and advocated for students to manage themselves and their limitations and to improve their ability to recognize individual differences (Zimmerman, 2002).

Different definitions have been made for the concepts of self-regulation and self-regulated learning, which are subjects explored in the literature by many authors. According to Pintrich (2005), self-regulated learning is “an active and constructive process in which learners set their own learning objectives and then monitor their cognition, behavior and motivation, and interact with their goals and surroundings”. Zimmerman (1992) defines self-regulated learning as “setting objectives, developing strategies to achieve these objectives, and controlling what these strategies have gained”.

The *Theory of Planned Behavior* (TPB) was first proposed by Fishbein and Ajzen (1977) and

reorganized by Ajzen (1991) (Erten, 2002). According to Ajzen, it is difficult to explain human behavior in its entire complex structure. Physiological, social and psychological approaches have been developed to explain the causes of behavior. Psychologists have examined biological

and environmental factors that affect behavior. Ajzen, a psychologist, also worked on the beliefs and attitudes that affect behavior, and put forward the PBT. In this study, an attempt was made to present a model proposal by testing the variables of behavioral beliefs (curriculum orientations), attitudes towards behavior (attitudes towards web-based instruction), and intentions towards behaviors (self-regulated learning skills) according to PBT. According to Ajzen (1991), there is a very close relationship between intention towards a behavior and the behavior itself. If the intention towards a behavior is determined, it will be easier to comment on the behavior itself. According to the PBT, the intention towards a behavior must first be established in order to enable that behavior to occur. The assumed behavior control can also affect the behavior directly.

Today, particularly in Turkey, it is seen that the activities of instructional technology are limited only to the studies carried out in the Computer and Instructional Technology Education (CEIT) departments, (Çağiltay and Göktaş, 2016). The main purpose of this study is to determine to what extent prospective teachers’ approach to the curriculum, and their beliefs and orientations, especially their technological curriculum orientations, affect those prospective teachers’ attitudes towards web-based instruction and self-regulated learning skills, according to *Ajzen’s Planned Behavior Theory*.

When the literature is examined, there are studies that examine prospective teachers’ curriculum orientations (e.g., Aktemur, 2014; Bay, Gündoğdu, Ozan, Dilekçi & Özdemir, 2012; Cheung, 2000; Cheung & Wong, 2002; Crummey, 2007; Eren, 2010; Foil, 2008; Geçitli, 2008; Jenkins, 2007; Jones, 1978; Kamil, Mukminin, Jamin, Yusuf & Idrus, 2013; Reding, 2008; Singleton, 2013; Tanrıverdi & Apak, 2014; Wyatt, 1994; Yeşilyurt,

2013; Zhang, 2015) and web pedagogical content knowledge levels (e.g., Akayüre, Nabie & Sofo,

2013; Akgün, 2013; Barış, 2015; Ekici, Ekici & Altunışık, 2015; Gömleksiz & Fidan, 2011; Horzum, 2011; Kavanoz, Yüksel & Özcan, 2015; Kaya, Özdemir, Emre & Kaya, 2011; Kuzu & Erten, 2011; Lee & Tsai, 2010; Lee, Tsai & Chang, 2008; Oskay & Odabaşı, 2016; Turan & Koç, 2016; Yeşiltaş, 2016). There are also studies that examine self-regulation, web-based instruction and online learning together (e.g., Barnard, Lan, To, Paton & Lai, 2009; Cho & Shen, 2013; Joo, Bong & Choi, 2000; Liaw & Huang, 2013; Shea & Bidjerano,

2010; However, there is no study of how teacher candidates' curriculum orientations affect their attitudes towards web-based instruction in these studies. It is important to know to what extent prospective teachers' curriculum orientations, which are defined as the common belief system, influence their attitudes (attitudes toward web-based learning) toward behavior (self-regulated learning skills). Based on *Ajzen's Theory of Planned Behavior*, which is frequently encountered in the literature, this study will try to determine to

what extent the CEIT students' beliefs and attitudes affect their self - regulatory learning skills, and

thereby, it is hoped that an important contribution will be made to the literature.

## METHOD

In this research, it was aimed to determine significant correlations between web pedagogical content knowledge, curriculum orientations and self-regulatory skills, and significant predictors of self-regulated learning skills.

## SAMPLING

The study universe consists of 2,055 students studying from 1<sup>st</sup> to 4<sup>th</sup> years in Computer Education and Instructional Technology (CEIT) departments of 14 ADIM<sup>1</sup> Universities in the 2016-2017 academic year in Turkey. The sample of the study was chosen with the typical case sampling method which is one of the purposive sampling methods, and consists of 458 students attending to the CEIT departments of ADIM Universities in western part of Turkey. The demographic characteristics of the participants in the sample are given in Table 1.

| Category         |                   | Frequency | Percentage (%) |
|------------------|-------------------|-----------|----------------|
| Gender           | Female            | 217       | 47.6           |
|                  | Male              | 239       | 52.4           |
| Year             | 1st Year          | 65        | 14.2           |
|                  | 2nd Year          | 128       | 27.9           |
|                  | 3rd Year          | 153       | 33.4           |
|                  | 4th Year          | 112       | 24.5           |
| High school Type | General           | 50        | 11.0           |
|                  | Teacher Training  | 18        | 3.9            |
|                  | Science           | 4         | 0.9            |
|                  | Foreign Languages | 67        | 14.7           |
|                  | Vocational        | 316       | 69.5           |

During the selection of the universities, priority was given to whether the universities are the four founding members of the ADIM Universities Consortium and to whether the foundation years of those universities are close. There are 458 students

in five universities. The sample is about 22% of the universe. A minimum of 324 participants in a universe of 2,055 people with a 95% confidence

<sup>1</sup> The *ADIM Universities Consortium* was founded in 2001 by four public universities situated in the western part of Turkey for the purpose of co-operation in education, research and

development, and scientific, technical and cultural university events.

level and an acceptable error of  $\pm 5\%$  is sufficient. A sample of 458 individuals in this study is

sufficient to represent the universe at 22% (Cochran, 1962).

#### DATA COLLECTION TOOLS

*The Web Pedagogical Content Knowledge Scale* (WPCKS) was developed by Lee, Tsai and Chang (2008) and confirmatory factor analysis was done by applying it with teachers by Lee and Tsai (2010). The validity and reliability studies of the original form of the scale were conducted on 558 teachers in Taiwan. First, varimax rotation explanatory factor analysis was applied to the scale, and the scale was found to be composed of 30 items and 5 subscales in a 6-point Likert-type scale (from 1=strongly disagree to 6=strongly agree). After confirmatory factor analysis, it was concluded that the compliance indices confirmed the pattern. The scale was first translated into Turkish for adaptation by Horzum (2011), and after being organized according to expert opinions. It was converted into a 5-point Likert-type scale (1=strongly disagree 5=strongly agree). The Turkish and English versions of the scale were filled out by 30 students every two weeks and the Turkish and English forms were considered as equivalent. As a result of the exploratory factor analysis, the scale was found to have a similar structure to the original one. After the confirmatory factor analysis, it was found that all the concordance indices taken into the evaluation showed values that have strong consistency or are close to strong consistency. The scale used in this study consists of 30 items and 5 dimensions.

The first dimension is the "General Web", and includes the 1st-7th items; the second dimension is the "Communicative Web", and includes the 8th-11th items; the third dimension is "Web Content Knowledge", and includes the 12th.-16th items; the fourth dimension is "Web Pedagogical Content Knowledge", and includes the 17th-24th items; and the final dimension is "Attitudes towards Web-Based Instruction", and includes the 25th-30th items. The Cronbach's Alpha reliability coefficients obtained in this study are .97, .97, .91, .94, .93 for the five dimensions respectively, and

.93 for all of the scale. These values indicate that the reliability of the scale is high.

*The Curriculum Orientation Inventory* (COI) was developed by Cheung and Wong (2002), and in the original version was implemented to 648 teachers in Hong Kong. The scale has 5-sub-dimensions

with 30 items and is in an 8-point Likert-type scale (1 = strongly disagree, 8 = strongly agree). In the scale, items 1-6 include the "Academic", items 7-12 include the "Cognitive Processes", items 13-18 include the "Social Reconstructionist", items 19-24 include the "Humanistic" and items 25-30 include the "Technological" sub-dimensions. The scale was first translated into Turkish for the purpose of adaptation by Eren (2010) and submitted for the consideration of 2 experts working in a foreign languages department. As a result of the confirmatory factor analysis done after corrections, it was found that the concordance indices of the scale were at the acceptable values. The Cronbach's Alpha reliability coefficients obtained for this study were .89, .92, .88, .93, .93 for the five sub-dimensions respectively, and .98 for all of the scale. These values indicate that the scale has high reliability.

*The Self-Regulated Learning Skills Scale* (SRLSS) was developed by Turan (2009) and is in a 5-point Likert-type scale consisting of 41 items. In the preparation of the scale, the researcher benefited from the relevant research studies, and a draft of 95 items was initially developed. Afterwards, the scale draft was revised by the researcher and 2 experts, and was reduced to 64 items by eliminating expressions that were difficult to understand. By using exploratory factor analysis after the experimental studies, expressions with a factor load value of less than .45 and expressions in more than one factor were searched for and a 4-factor scale and a 41-item scale with an eigenvalue greater than 1.5 were obtained. The scale has sub-dimensions, which are "Acting for Motivation and Learning" consisting of 7 items (1, 2, 4, 5, 6, 8, 9), "Planning and Goal Setting" consisting of 8 items (10,11,13,14,15,16,17,18), "Strategy Usage and Assessment" consisting of 19 items (19,21,23,24,25,26,27,28,29,30,31,33,34,35,36,37

,38,40,41), and “Lack of Self-Directedness” consisting of 7 items (3, 7, 12, 20, 23, 32, 39). The

Cronbach’s Alpha reliability coefficients obtained in this study are .86, .92, .94, .88. for the four sub-dimensions respectively, and .92 for all of the scale. These values indicate that the scale has high reliability.

#### DATA ANALYSIS

In the study, the data obtained through the forms were coded and entered into the SPSS 23.00 statistical package software one by one to make statistical measurements. 460 items of data

obtained through printed and online forms that checked the same information were examined and it was determined that in 2 items of data at least one of the scales was not filled in, and this scale was extracted from the data set. Descriptive statistics, such as the frequency and percentage for the demographics of the participants, were calculated. Data were analyzed with nonparametric tests, and Cronbach’s Alpha reliability coefficient was examined for reliability coefficients. AMOS 24.00

software was used for the path analysis, and this was done by using the “Asymptotically Distributed Free” (ADF) method because of not obtaining multivariate normality. The ADF method is used in situations where multivariate normality is not achieved (Van Praag et al., 1985; Johns and Wallar, 2015). In the path analysis, whether the fit indices of  $\chi^2 / sd$ , AGFI, GFI, CFI, NFI, IFI, RMSEA and SRMR showed excellent fit was also noted.

#### FINDINGS

##### RESULTS RELATED TO THE CORRELATIONS

As can be seen from the correlation results in Table 3, there are high, medium and low positive and negative correlations among almost all subscales. The highest correlation was found between the humanistic and technological curriculum orientation subscales ( $r=.863$ ). The lowest correlation was found between the technological curriculum orientation and lack of self-directedness subscales ( $r=.122$ ).

| Factors | Att   | Aca   | Cog   | Soc   | Hum   | Tech  | Mot    | Plan   | Str    | Lack |
|---------|-------|-------|-------|-------|-------|-------|--------|--------|--------|------|
| Att     | -     |       |       |       |       |       |        |        |        |      |
| Aca     | .389* | -     |       |       |       |       |        |        |        |      |
| Cog     | .402* | .808* | -     |       |       |       |        |        |        |      |
| Soc     | .334* | .758* | .769* | -     |       |       |        |        |        |      |
| Hum     | .391* | .727* | .847* | .768* | -     |       |        |        |        |      |
| Tech    | .451* | .752* | .837* | .780* | .863* | -     |        |        |        |      |
| Mot     | .354* | .299* | .273* | .344* | .311* | .332* | -      |        |        |      |
| Plan    | .337* | .383* | .308* | .369* | .328* | .384* | .681*  | -      |        |      |
| Str     | .345* | .365* | .285* | .364* | .292* | .348* | .687*  | .849*  | -      |      |
| Lack    | -.021 | .033  | .192* | -.002 | .220* | .122* | -.159* | -.216* | -.284* | -    |

\*Correlation is significant at the 0,05 level. (Att: Attitudes Toward Web-Based Instruction, Aca: Academic Orientation, Cog: Cognitive Processes Orientation, Soc: Social Reconstructionist Orientation, Hum: Humanistic Orientation, Tech: Technological Orientation, Mot: Motivation and Action to Learning, Plan: Planning and Goal

Setting, Str: Strategy Usage and Assessment, Lack: Lack of Self-Directedness

#### PATH ANALYSIS

Path analysis was done with AMOS 24.00 software in order to determine the significant predictors of

self-regulated learning skills of the students of CEIT and to calculate the effect size of these

predictors. The multivariate normality values of the model are shown in Table 4.

| Variable                               | Skewness | c.r.    | Kurtosis | c.r.   |
|--|----------|---------|----------|--------|
| Technological                          | -1.487   | -12.987 | 2.941    | 12.847 |
| Humanistic                             | -1.465   | -12.802 | 2.968    | 12.967 |
| Social Reconstructionist               | -1.090   | -9.527  | 1.576    | 6.885  |
| Cognitive Processes                    | -1.382   | -12.070 | 2.374    | 10.369 |
| Academic                               | -1.236   | -10.800 | 1.963    | 8.577  |
| Attitudes Toward Web-Based Instruction | -1.977   | -17.270 | 5.254    | 22.950 |
| Planning and Goal Setting              | -1.142   | -9.974  | 2.077    | 9.072  |
| Strategy Usage and Assessment          | -1.111   | -9.709  | 3.366    | 14.704 |
| Motivation and Action to Learning      | -1.524   | -13.314 | 4.604    | 20.113 |
| Lack of Self-Directedness              | .204     | 1.779   | -.849    | -3.709 |
| Multivariate                           |          |         | 77.398   | 53.459 |

The fact that skewness and kurtosis values are not within  $\pm 1$  according to Table 4 means that a single variate normal distribution is not achieved (Muthén and Kaplan, 1985). Also, it was determined that the multivariate critical ratio (Mardia coefficient) is greater than 1.96, so that multivariate normality is not provided (Mardia, 1970). Due to the inability to reach the acceptable values in spite of the deletion from the dataset of 100 items of data that impair normal distribution, and since the number of data to be used in the path analysis must be at a high level, the data deletion method was abandoned to ensure normal distribution. It was also assumed that the data do not distributed normally. The

model was created using the ADF method. When the model was constructed, it was first prepared based on the theoretical model (TPB, Ajzen, 1991). Because of the fact that the model's fit indices were far from the accepted values and the paths had no significant results ( $-1.96 < t < 1.96$ ), the model was revised so as not to disrupt the theoretical structure. The theoretical and specialized model paths and the fit indices of the model are shown in Table 5, Figure 1 and Figure 2. Direct, indirect and total path coefficients for the customized model are shown in Table 6. The values of the effect size of the customized model are shown in Table 7.

Table 5. Model Fit Indices for Path Analysis

| Fit Indices | Perfect Fit Indices       | Acceptable Fit Indices    | Theoretical Model | Specialized Model |
|-------------|---------------------------|---------------------------|-------------------|-------------------|
| $\chi^2/sd$ | $0 \leq \chi^2/sd \leq 2$ | $2 \leq \chi^2/sd \leq 3$ | 3.457             | 1.968             |
| AGFI        | $.90 \leq AGFI \leq 1$    | $.85 \leq AGFI \leq .90$  | .72               | .90               |
| GFI         | $.95 \leq GFI \leq 1.00$  | $.90 \leq GFI \leq .95$   | .92               | .97               |
| CFI         | $.95 \leq CFI \leq 1.00$  | $.90 \leq CFI \leq .95$   | .85               | .95               |
| NFI         | $.95 \leq NFI \leq 1.00$  | $.90 \leq NFI \leq .95$   | .82               | .90               |
| IFI         | $.95 \leq IFI \leq 1.00$  | $.90 \leq IFI \leq .95$   | .87               | .95               |
| RMSEA       | $.00 \leq RMSEA \leq .05$ | $.05 \leq RMSEA \leq .08$ | .073              | .046              |
| SRMR        | $.00 \leq SRMR \leq .05$  | $.05 \leq SRMR \leq .10$  | .31               | .08               |

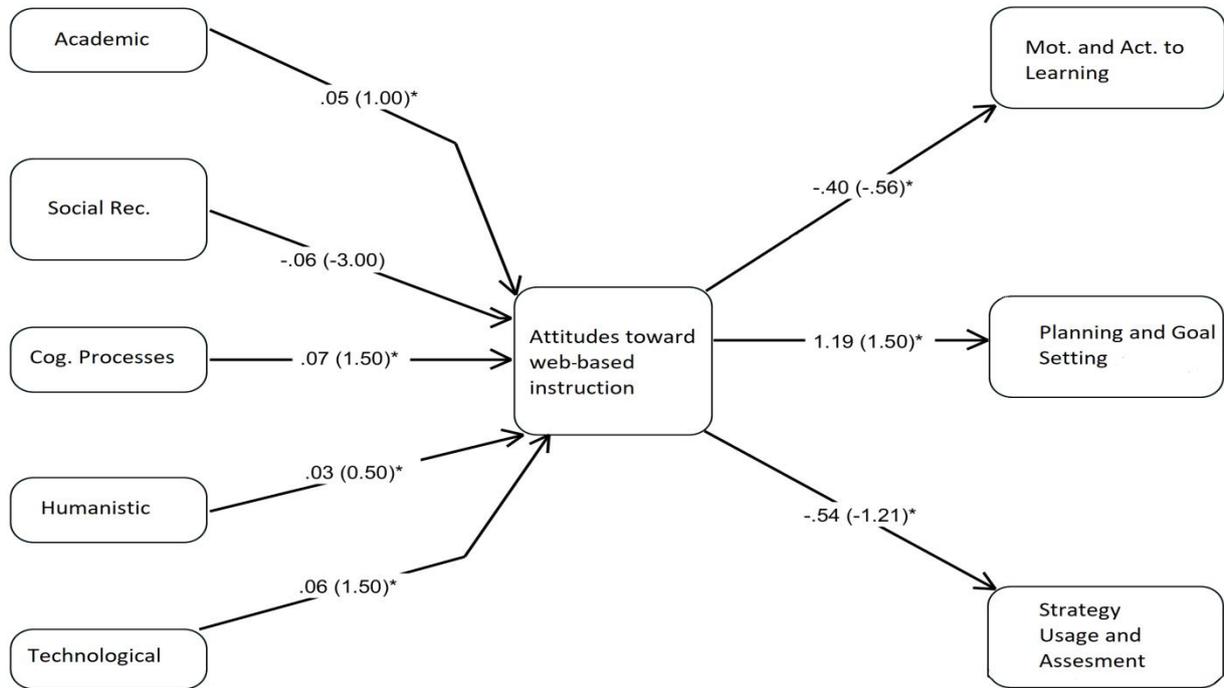
Fit Indices (Munro, 2005; Schreiber, Nora, Stage, Barlow and King, 2006; Şimşek, 2007; Hooper and Mullen 2008; Schumacker and Lomax, 2010;

Waltz, Strickland and Lenz 2010; Wang and Wang, 2012; cited by Çapık, 2014).

According to Table 5., the majority of the customized model's fit indices provided perfect fit

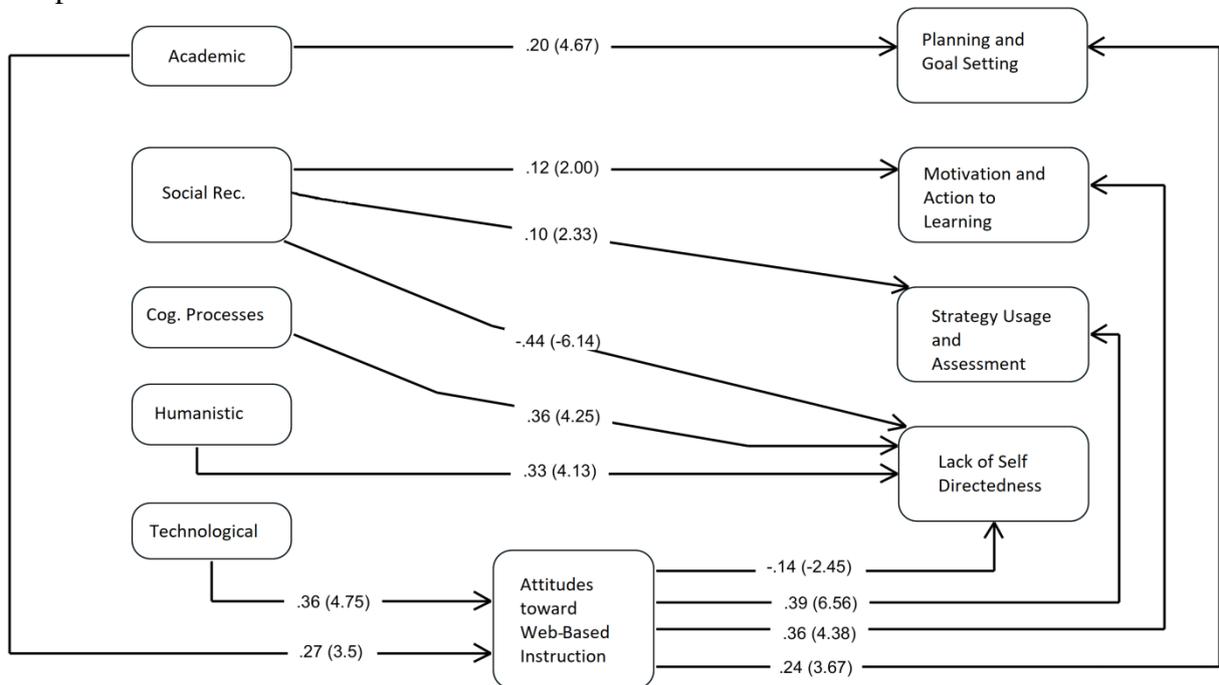
indices ( $\chi^2 / sd = 1.968$ , AGFI = .90, GFI = .97, CFI = .95, NFI = .90, IFI = .95, RMSEA = .08).

Figure 1. Theoretical Model Path Coefficients and *t*-values



\* The path is not significant ( $-1.96 < t < 1.96$ ).

Figure 2. Specialized Model Path Coefficients and *t* Values



$\chi^2 = 33.456$   $sd = 17$

Table 6.  
Customized Model Path Coefficients ( $\beta$ )

| Variables    | Technological |        |      | Humanistic |        |      | Social |        |      | Cognitive |        |      | Academic |        |      | Attitudes |        |      |
|--------------|---------------|--------|------|------------|--------|------|--------|--------|------|-----------|--------|------|----------|--------|------|-----------|--------|------|
|              | Dir.          | Indir. | Tot. | Dir.       | Indir. | Tot. | Dir.   | Indir. | Tot. | Dir.      | Indir. | Tot. | Dir.     | Indir. | Tot. | Dir.      | Indir. | Tot. |
| Attitudes    | .36           | -      | .36  | -          | -      | -    | -      | -      | -    | -         | -      | -    | .27      | -      | .27  | -         | -      | -    |
| Planning     | -             | .09    | .09  | -          | -      | -    | -      | -      | -    | -         | -      | -    | .20      | .07    | .27  | .24       | -      | .24  |
| Strategy     | -             | .14    | .14  | -          | -      | -    | .10    | -      | .10  | -         | -      | -    | -        | .11    | .11  | .39       | -      | .39  |
| Motivation   | -             | .13    | .13  | -          | -      | -    | .12    | -      | .12  | -         | -      | -    | -        | .10    | .10  | .36       | -      | .36  |
| Lack of Self | -             | -.05   | -.05 | .33        | -      | .33  | -.44   | -      | -.44 | .36       | -      | .36  | -        | -.04   | -.04 | -.14      | -      | -.14 |

(Attitudes = Attitudes Toward Web-Based Instruction, Planning = Planning and Goal Setting, Strategy = Strategy Usage and Assessment, Motivation = Motivation and Action to Learning, Lack of Self = Lack of Self-Directedness, Dir.= Direct Impact, Indir. = Indirect Impact, Tot. = Total Effect)

Table 7.  
Effect Size Values for Specialized Model

| Variables                              | R <sup>2</sup> |
|--|----------------|
| Attitudes Toward Web-Based Instruction | 0.343          |
| Planning and Goal Setting              | 0.153          |
| Strategy Usage and Assessment          | 0.203          |
| Motivation and Action to Learning      | 0.181          |
| Lack of Self-Directedness              | 0.138          |

## RESULTS AND DISCUSSION

The purpose of this study was to determine predictors of self-regulated learning skills. It was also aimed to observe significant correlations between web pedagogical content knowledge, curriculum orientations and self-regulatory skills of CEIT students registered in different years and public universities. Correlation results showed that there are high, medium and low positive and negative correlations among almost all subscales employed in this research. The results show that there is a positive correlation between the attitudes towards web-based instruction and self-regulated learning skills of candidate teachers. Similar to this conclusion, Shea & Bidjerano (2010) concludes in their study that online learning environments were effective in learner self-regulated learning skills. In a similar study, Barnard et al. (2009) also concludes that the self-regulatory learning process has a larger and more important role in online learning environments.

In another study, investigating self-efficacy and self-regulation self-efficacy, Joo et al. (2000), a positive relationship between self-efficacy self-efficacy self-regulation of the internet. Studies in the literature showed that online learning, internet efficacy, web-based instruction and self-regulatory skills are all correlated. This study discusses the predictors of self-regulatory skills such as curriculum orientations and attitudes toward web-based instruction.

Analyzing the results of path analysis in the current study, it was determined that CEIT students' academic and technological curriculum orientations explain 34.3% of their attitudes toward web-based instruction. The results also indicated that the students' academic curriculum orientations ( $\beta=.27$ ) directly predict their attitudes toward web-based instruction positively and significantly. In addition, it was found that the students' technological curriculum orientations ( $\beta=.36$ ) predict their attitudes toward web-based instruction directly, positively, and significantly. There is no significant path among social reconstructionist orientation, humanistic orientation and attitudes towards web-based

teaching. It may be argued that in the emergence of this situation, the cognitive processes related items in the scale for social reconstructionist and humanistic orientations are directly related to self-regulated learning skills.

The results indicated that students' academic and technological curriculum orientations and attitudes towards web-based instruction explain 15.3% of the variance of planning and goal setting, which is a subscale of self-regulated learning skills. It was also clarified that the academic curriculum orientation ( $\beta=.20$ ) and attitudes toward web-based instruction ( $\beta=.24$ ) predicted the planning and goal setting directly, positively and significantly. In addition, the academic curriculum orientation ( $\beta=.07$ ) and the technological curriculum orientation ( $\beta=.09$ ) were found to have predicted the planning and goal setting indirectly, positively and significantly. In a similar study by Liaw and Huang (2013), interactive learning environments emerged as the significant predictors of self-regulatory learning.

Students' academic, technological and social reconstructionist curriculum orientations and attitudes towards web-based instruction explain 20.3% of the variance of strategy usage and assessment in the study. It was also found that the social reconstructionist curriculum orientation ( $\beta=.10$ ) and attitudes toward web-based instruction ( $\beta=.39$ ) predicted strategy usage and assessment directly, positively and significantly. In addition, the technological curriculum orientation ( $\beta=.14$ ) and the academic curriculum orientation ( $\beta=.11$ ) were found to have predicted strategy usage and assessment indirectly, positively and significantly. Technological and social reconstructionist curriculum orientations and attitudes toward web-based instruction explain 18.1% of the variance of motivation and action to learning. The social reconstructionist curriculum orientation ( $\beta=.12$ ) and attitudes toward web-based instruction ( $\beta=.36$ ) predicted the strategy usage and assessment directly, positively and significantly. Besides, it was found that the technological curriculum orientation ( $\beta=.13$ ) and the academic curriculum orientation ( $\beta=.10$ )

predicted the strategy usage and assessment indirectly, positively and significantly.

Finally, it was determined that all curriculum orientations and attitudes towards web-based instruction explain 13.8% of the variance of lack of self-directedness. While the humanistic curriculum orientation ( $\beta=.33$ ) and cognitive processes orientation ( $\beta=.36$ ) predicted the dimension of lack of self-directedness directly, positively and significantly. The social reconstructionist curriculum orientation ( $\beta=-.44$ ) and attitudes toward web-based instruction ( $\beta=-.14$ ) predicted the lack of self-directedness directly, negatively and significantly. Moreover the technological curriculum orientation ( $\beta=-.05$ ) and the academic curriculum orientation ( $\beta=-.04$ ) predicted the lack of self-directedness indirectly, negatively and significantly. Based on the results of the study, a similar study may be done with information technology teachers in order to obtain deeper qualitative aspects of the variables studied. Regarding the results of the study, time used for web-based instruction in higher education may be increased to help students' self-regulated learning skills.

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