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CONTENTS
İçindekiler

Turkish Version of the Principals’ Sense of Efficacy Scale: Validity and Reliability Study
Ayşe Negiş Işık, Deniz Denizbay.................................................................1-16

Teachers’ Expectations and School Administration: Keys of Better Communication in Schools
Engin Aşlanargun .........................................................................................17-34

Purposes, Causes and Consequences of Excessive Internet Use among Turkish Adolescents
Filiz Akar .....................................................................................................35-56

Preschool Teacher Candidates’ Research Qualifications and Anxiety Level towards Research
Gamze Yavuz Konakman, Tuğba Yeğen, Gürrol Yokuş..................................57-74

Re-Thinking Assessment: Self- and Peer-Assessment as Drivers of Self-Direction in Learning
Kathy Harrison, Joe O’Hara, Gerry Mcnamara...........................................75-88

Self-Awareness and Personal Growth: Theory and Application of Bloom’s Taxonomy
Hasan Uğur, Petru-Madalin Constantinescu, Michael J. Stevens..................89-110

Perceived Social Support, Depression and Life Satisfaction as the Predictor of the Resilience of Secondary School Students: The Case of Burdur
Hülya Şahin Baltacı, Zeynep Karataş............................................................111-130

The Effect of Organizational Justice and Perceived Organizational Support on Organizational Citizenship Behaviors: The Mediating Role of Organizational Identification
Kamile Demir............................................................................................131-148

Transformational Leadership and Innovative Climate: An Examination of the Mediating Effect of Psychological Empowerment
Mesut Sağnak, Mehmet Kurduz, Betül Polat, Ayşe Soylu.................................149-162

Active Listening Strategies of Academically Successful University Students
Murat Canpolat, Selvan kuzu, Bilal Yıldırım, Sevilya Canpolat........................163-180

The Regression Level of Constructivist Learning Environment Characteristics on Classroom Environment Characteristics Supporting Critical Thinking
Nihal Tunca...............................................................................................181-200

Teachers’ Withdrawal Behaviors and their Relationship with Work Ethic
Özge Erdemli .............................................................................................201-220

Integration of Media Design Processes in Science, Technology, Engineering, and Mathematics (STEM) Education
Engin Karahan, Sedef Cantazoglu Bilic, Aydin Ünal.........................................221-240

The Extent to Which the Characteristics of a Metacognitive Oriented Learning Environment Predict the Characteristics of a Thinking-Friendly Classroom
Serferat Akin-Şahin .....................................................................................241-260

The Effect of Multimedia-Based Learning on the Concept Learning Levels and Attitudes of Students
H. Ömer Beydoğan, Zeynel Hayran..............................................................261-280

A Metaphor Analysis of Elementary Student Teachers’ Conceptions of Teachers in Student- and Teacher-Centered Contexts
Sibel Duru.....................................................................................................281-310

REVIEWERS of the 60th ISSUE
60. Sayı Hakemleri

Ali Ersoy
Arzu Yükselen
Ayşe Çiftçi
Baki Duy
Banu Yüceltoy
Berna Arslan
Cevat Elma
Erdinç Düru
Kadriye Funda Nayır
Gökhan Atik
Güliz Aydin
Gülşen Üner
Hakan Atlıgan
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Kamile Demir
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Abstract

Problem Statement: Principals are known as important actors in effective schools. So it is important to know which variables influence principals' success. One of these predictors can be self-efficacy. However, there is very few research about principals' sense of efficacy.

Purpose of the Study: The purpose of this research was to test the psychometric properties of the Turkish version of the Principal Sense of Efficacy Scale (PSES-T).

Method: Confirmatory and Exploratory factor analysis were conducted in order to determine the factor structure of the scale. Two independent samples of school administrators were used for this analysis. The relationship between social support and PSES-T were also examined in order to test the concurrent validity of the scale. Finally, internal consistency of scale was tested by using Cronbach alpha.

Findings: Confirmatory factor analyses (CFA) were performed using maximum likelihood estimations, in order to assess the structural validity of the Turkish version of PSES. The model indices were \( \chi^2/df = 2.80, \) CFI=.873, TLI=.87, RMSEA= .100, SRMR=.064, suggesting an unacceptable fit of the model to the data. Concluding that 3 factor 18-item PSES did not fit the data obtained from a Turkish sample, an exploratory factor analysis (EFA) was conducted to further explore the factor structure of the 18-item PSES that better represented the sample data. EFA results showed strong
evidence for a single factor structure of scale. Total variance explained by a single factor was 41% and factor loadings ranged from .50-.74 (M=.64). Based on the results of the EFA, the single factor model with 18 items was tested on a second sample by using CFA with the maximum likelihood method. Results indicated that single factor PSES met goodness-of-fit criteria; $\chi^2$/df = 1.6, CFI=.95, TLI=.94, RMSEA=.06, and SRMR=.04. As to the reliability results, Cronbach's Alpha was calculated as .94 for the whole scale. Also, low to moderate correlations were found between social support, and PSES was evidence for concurrent validity of scale.

Conclusion and Recommendations: The overall findings of the present study provide evidence for the validity and reliability of the PSES with a Turkish sample. Validation and reliability studies of the PSES within different cultural contexts and samples are crucial for the generalizability of the scale. The current study is important in terms of bringing this scale into Turkish literature.

Keywords: Principals' sense of efficacy, self-efficacy, validity, reliability.

Introduction

Principals are known as important actors in effective schools. So it is important to know which variables influence principals’ success. One of these predictors can be self-efficacy. Previous research suggests that there is a relationship between principals’ self-efficacy and effectiveness (Anderson, Krajewski, Goffin, & Jackson, 2008; Judge & Bono, 2001; McCullers & Bozeman, 2010; Ramchunder & Martins, 2014). Given the importance of better understanding self-efficacy, further research is needed in different samples and cultures. Since valid and reliable measures are perquisites of doing culturally responsive research, the aim of this study was to examine psychometric qualities of PSES in a Turkish sample.

Self-Efficacy

Self-efficacy is embedded within social cognitive theory and developed its roots from the social learning theory. Bandura (1986) indicates that self-efficacy is a concept resulting from the interaction of behaviors, environmental variables, and personal variables.

Self-efficacy is defined as “people’s beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives” (Bandura, 1994, p.1), “beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments” (Bandura, 1997, p.3), or “beliefs in one's abilities to mobilize the motivation, cognitive resources, and courses of action needed to meet situational demands” (Wood & Bandura, 1989, p.48). Self-efficacy is commonly used as a domain-specific construct rather than being a general trait (Bandura, 1986). Self-efficacy can be generalized for similar situations; however,
it can be low in another field while one’s self-efficacy is high in a certain field (Bandura, 1982).

According to Bandura (2012) there are four factors that determine self-efficacy: (1) mastery experiences, (2) vicarious experiences, (3) verbal persuasion, and (4) physiological arousal. Mastery experience has been identified as the most powerful variable of self-efficacy. Mastery experiences are stated as prior experiences concerning a given task (Milner & Hoy, 2003; Tschannen-Moran & Gareis, 2007). While successful experiences increase one’s self-efficacy beliefs, unsuccessful experiences negatively affect these beliefs. Vicarious experiences result from learning by modeling and observing others (Tschannen-Moran & Gareis, 2007). Bandura (1994) explains that people observe others who are similar to them and who are successful in their jobs; in this regard people enhance a belief that they can be successful, too. Verbal persuasion is a kind of feedback concerning one’s success in a given task (Bandura, 1986). Bower and Hilgard (1981) state that people who are persuaded about their personal skills put forth more effort, proceed in their efforts even if they make mistakes, and take responsibility when they face with problems. Individuals often associate their stress and tension with their lack of abilities (Milner & Hoy, 2003).

Bandura (1997, p.3) stated that self-efficacy influences: (1) which behavior people choose to pursue, (2) how much effort they spend, (3) how long they will persevere in the face of obstacles and failures, (4) their resilience to difficulties, (5) whether their thought patterns are self-hindering or self-aiding, and (6) how much stress or anxiety they experience in coping with environmental demands. Similarly, Gist and Mitchell (1992) propose that self-efficacy is a very important motivational structure that affects personal preferences, goals, emotional reactions, effort, coping, and resistance.

Within educational literature there are many studies that show teacher and student self-efficacy beliefs can be associated with learning and teaching. Studies on students’ self-efficacy indicate that: self-efficacy has a role in enhancing the motivation to learn, students with high self-efficacy endeavor more to succeed, and there is a strong relationship between self-efficacy and success (Altun & Aykoc, 2009; İşınsal, 2002; Pajares, 1996).

There are many studies intended to determine teachers’ and teacher candidates’ self-efficacy in different areas such as use of computer (Orhan, 2005), science teaching (Hamurcu, 2006; Yalçın, 2011), maths teaching, (Dede, 2008), and teachers’ self-efficacy beliefs (Babaoğlu & Korkut, 2010; Külekiç, 2011). Furthermore, there are studies that investigate the relationship between teachers’ self-efficacy and student success (Allinder, 1995; Bandura, 1993; Copraro, Barbaranelli, Steca, & Malone, 2006; Gaddard, Hoy, & Hoy, 2000; Schunk, 1989; Tschannen-Moran & Barr, 2004). These studies indicate that teachers who have strong self-efficacy beliefs are more successful in increasing students’ success and motivation. As a result of Bandura’s (1993) research, being taught by teachers with low self-efficacy decreases students’ self-efficacy and performance expectations.
Principal self-efficacy

The principal is regarded as a key agent, initiating change by raising the level of expectations for both teachers and students (Tschanne-Moran & Gareis, 2004). Leadership self-efficacy is important because it affects followers’ attitudes and performance (Chemers, Watson, & May, 2000; Lehman, 2007). Principal self-efficacy can be defined as a kind of leadership self-efficacy that is related to the level of self-confidence, ability, and skill to act as a leader among other people (Hannah, Avolio, Luthans, & Harms, 2008). Principal self-efficacy is a perception related to planning, organizing and executing tasks and relationships with other people and organizations (Federici & Skaalvik, 2011).

Especially within the last decade, principal self-efficacy has emerged as a significant issue and is of interest to researchers after the development of instruments assessing this subject (e.g., Principals Self-Efficacy Scale, Dimmock & Hattie, 1996). Of these instruments, the Principal Sense of Efficacy Scale (PSES; Tschanne-Moran & Gareis, 2004) has received much attention (Brown, 2010; Lockard, 2013; McCullers & Bozeman, 2010; Moak, 2010; Versland, 2009; Watts, Kolsun, Cline, & Williams, 2011; Williams, 2012). Validation and reliability studies of the PSES within different cultural contexts and samples are crucial for the generalizability of the scale. Therefore, the aim of the present study was to examine psychometric qualities of PSES in a Turkish sample.

Method

The aim of this study is to conduct validity and reliability analysis of the Turkish version of the Principal Sense of Efficacy Scale (PSES-T).

Participants

Two independent samples of school administrators from Turkey were used for this study: (a) Exploratory Factor Analysis (EFA) sample, and (b) Confirmatory Factor Analysis (CFA) sample. The first sample contained 150 school principals (11% women, and 89% men). Their principal seniority ranged from 1 to 33 years (M = 9.8, SD = 7.9). All participants were either principals (60%) or assistant principals (40%). The second sample contained 150 school principals (10% women, and 90% men). Principal seniority ranged from 1 to 37 years (M = 8, 6, SD = 7.01). Of them, 57% were principals and 43% were assistant principals.

Measures

Principal Sense of Efficacy Scale (PSES). The PSES (Tschanne-Moran & Gareis, 2004) is an 18-item scale that assesses a principal’s belief about his/her management skills. Respondents rate their confidence on a 9-point Likert-type scale from 1 (none at all) to 9 (a great deal). The PSES consists of three subscales (Efficacy for Management, Efficacy for Instruction, and Efficacy for Moral Leadership). Respectively, sample items include “prioritize among competing demands of the job”, “facilitate student learning in your school”, and “promote ethical behavior
among school personnel”. Scores can range from 18 to 162, with higher scores reflecting a higher sense of principal efficacy. Construct validity was supported by negative correlation with work alienation and positive correlation with trust in teachers. The scale has good internal consistence with alphas of .91 for the total scale and .86 to .89 for the subscales.

**Interpersonal social support.** Interpersonal social support was measured through questions related to principals’ received support following the study by Tschannen-Moran and Gareis (2007). Interpersonal social support was measured directly by asking participants to rate the level of support they receive from the superintendent, central office, teachers, school staff, parents, and students (e.g., How would you rate the quality of support you receive the central office in your school principal tasks?) on a 5-point scale ranging from the lowest quality to the highest. Exploratory factor analysis (EFA) was conducted to explore the factor structure of the interpersonal social support questions. Two factors emerged with eigenvalues over 1.0 (3.0-1.1), which accounted for 70% of shared variance. The questions related to social support within the school (staff, teachers, parents, and students) had factor loadings that ranged from .77 to .82; social support out of the (superintendent and central-office staff) had factor loadings of .83 and .89. The results of these analyses were similar to Tschannen-Moran and Gareis’s (2007) findings.

**Procedures**

The study was conducted after obtaining permission from Tschannen-Moran and Gareis. The translation process was done in two stages: first, the original form was translated to Turkish by the authors; second, back translation was made by two language experts and back translated versions were compared with the original version by a native English speaker. In addition to this application to assess language appropriateness, a sample of twelve school administrators was consulted. After feedback from the sample, item wordings and instructions were revised.

Participants of the study were school principals who were drawn from a population of about 420 schools in the central region of Turkey. The names of the schools were obtained from the Konya Provincial Education Directorate. Packets of instruments, along with an explanatory letter, a demographic information sheet, a written consent form, information about anonymity, and a postage paid self-addressed envelope were mailed to the participants. Of the 420 packets of instruments and forms, 324 were returned, with a return rate of 77.1%. After checking for the missing responses and validity item (which forced respondents to mark “3” for that rating), 24 respondents were not included in the analyses.

**Analysis**

The psychometric characteristics of the instrument were analyzed through studies of reliability (internal consistency; by Cronbach’s Alpha, corrected item-total correlations, and means difference between upper 27% and lower 27%), confirmatory factor analysis (CFA), and exploratory factor analysis (EFA), which was conducted to examine the factor structure. Finally, the correlations between PSES and
organizational support were examined in order to test the convergent validity of the scale.

Pearson correlations, EFA, t-test, and Cronbach’s Alpha analyses were conducted with SPSS version 15 for Windows. Confirmatory factor analyses with maximum likelihood (ML) estimation and fit statistics were done with AMOS 16.0.

Results

Prior to analysis, statistical assumptions were evaluated to ensure normal distribution and multivariate analysis for both samples. The skewness and kurtosis values range from -0.35 to -1.07 and -0.26 to -1.15, respectively. This clearly suggests that the items conform to the assumption of confirmatory factor analysis for this sample. Table 1 displays descriptive data of the PSES-T for both samples.

Table 1.
Descriptive Data for the PSES-T for Samples 1 and 2

<table>
<thead>
<tr>
<th>Items</th>
<th>Sample 1 (n=150)</th>
<th>Sample 2 (n=150)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>1</td>
<td>6.8</td>
<td>1.4</td>
</tr>
<tr>
<td>2</td>
<td>6.9</td>
<td>1.5</td>
</tr>
<tr>
<td>3</td>
<td>7.2</td>
<td>1.3</td>
</tr>
<tr>
<td>4</td>
<td>7.3</td>
<td>1.3</td>
</tr>
<tr>
<td>5</td>
<td>7.4</td>
<td>1.3</td>
</tr>
<tr>
<td>6</td>
<td>7.5</td>
<td>1.3</td>
</tr>
<tr>
<td>7</td>
<td>6.9</td>
<td>1.6</td>
</tr>
<tr>
<td>8</td>
<td>6.6</td>
<td>1.9</td>
</tr>
<tr>
<td>9</td>
<td>7.5</td>
<td>1.3</td>
</tr>
<tr>
<td>10</td>
<td>7.7</td>
<td>1.3</td>
</tr>
<tr>
<td>11</td>
<td>7.2</td>
<td>1.6</td>
</tr>
<tr>
<td>12</td>
<td>6.9</td>
<td>1.5</td>
</tr>
<tr>
<td>13</td>
<td>7.3</td>
<td>1.4</td>
</tr>
<tr>
<td>14</td>
<td>7.8</td>
<td>1.3</td>
</tr>
<tr>
<td>15</td>
<td>7.5</td>
<td>1.6</td>
</tr>
<tr>
<td>16</td>
<td>7.9</td>
<td>1.2</td>
</tr>
<tr>
<td>17</td>
<td>6.9</td>
<td>1.6</td>
</tr>
<tr>
<td>18</td>
<td>7.4</td>
<td>1.4</td>
</tr>
</tbody>
</table>

Structural Validity

Confirmatory factor analyses (CFA) were performed using maximum likelihood estimations in order to assess the structural validity of the Turkish version of PSES. These analyses were performed using the AMOS statistical package. In order to assess the model fit, we used the $\chi^2$, $\chi^2$/degree of freedom ($\chi^2$/df), the goodness of fit index (GFI), the comparative fit index (CFI), the root mean square error of
approximation (RMSEA), the standardized root mean square residual (SRMR), and the comparative fit index (CFI). Cutoff levels for determining the model fit were: \( \chi^2/df \leq 3 \), CFI, TLI \( \geq .90 \), RMSEA, and SRMR \( \leq .08 \) (Hu & Bentler, 1999, Schreiber, Nora, Stage, Barlow, & King, 2006). The model indices were \( \chi^2/df = 2.80 \), CFI = .873, TLI = .87, RMSEA = .100, and SRMR = .064, suggesting an unacceptable fit of the model to the data.

Concluding that 3 factor 18-item PSES did not fit the data obtained from a Turkish sample, an exploratory factor analysis (EFA) was conducted to further explore the factor structure of the 18-item PSES-T that better represented the sample data. The adequacy of the data for factor analysis was supported by Kaiser’s measure of sampling (KMO) value of .88 and Barlett test of sphericity \( \chi^2 = 1207.0 \) \( (p <.001) \). A principal component factor analysis with varimax rotation was conducted. Based on the results, factors 1, 2, and 3 had eigenvalues of 7.39, 1.46, 1.16 and accounted for 41, 8, and, 6.4\% of variance, respectively. Although three factors have eigenvalues above 1, examination of the scree plot and the second and the third factors made a weak contribution to the total of variance, suggesting a strong single factor structure (Çokluk, Şekercioğlu, & Büyüköztürk, 2010). Factor loadings in single factor structure ranged from .50–.74 \( (M=.64) \).

Based on the results of the EFA, a single factor model with 18 items was tested on the second sample by using CFA with the maximum likelihood method. Results indicated that single factor PSES-T met goodness-of-fit criteria; \( \chi^2/df = 1.6 \), CFI = .95, TLI = .94, RMSEA = .06, and SRMR = .04.

**Concurrent Validity**

Due to previous theories (Bandura, 1997) and researches (Kruger, 1997; Pati & Kumar, 2010; Tschannen-Moran, & Gareis, 2007; Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998; Özdemir, 2010) suggesting that self-efficacy may be related with social support, potential associations between PSES-T scores and perceived social support were examined (see Table 2).

### Table 2.
**Correlation between PSES-T and Social Support**

<table>
<thead>
<tr>
<th></th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>PSES-T</td>
<td>.187*</td>
<td>.185*</td>
<td>.383**</td>
<td>.350**</td>
<td>.286**</td>
</tr>
<tr>
<td>2.</td>
<td>Central-office</td>
<td>.549**</td>
<td>.270**</td>
<td>.134</td>
<td>.314**</td>
<td>.211**</td>
</tr>
<tr>
<td>3.</td>
<td>Superintendent</td>
<td>.320**</td>
<td>.268**</td>
<td>.308**</td>
<td>.285**</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Teachers</td>
<td>.693**</td>
<td>.482**</td>
<td>.481**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>School staff</td>
<td>.493**</td>
<td>.418**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Parents</td>
<td>.688**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Students</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .05, **p < .01

As expected, PSES-T scores had low positive correlations with social support from superintendent and central-office staff and moderate positive correlations with social support from staff, teachers, parents, and students.
A multiple regression test was conducted to determine whether or not demographic variables (years of administrative experience, years at school, socio-economic status of students, and school level) were significant predictors of PSES (see Table 3).

### Table 3.

**Multiple Regression: Prediction of Principal Sense of Efficacy**

<table>
<thead>
<tr>
<th>Criterion</th>
<th>$R^2$</th>
<th>$F$</th>
<th>$\eta^2$</th>
<th>Predictor</th>
<th>Beta</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSES-T</td>
<td>.115</td>
<td>6.22**</td>
<td></td>
<td>Years of experience</td>
<td>.221*</td>
<td>.002</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Years at school</td>
<td>.032</td>
<td>.644</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Socio-eco status</td>
<td>.202*</td>
<td>.004</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>School level</td>
<td>.101</td>
<td>.142</td>
</tr>
</tbody>
</table>

*p < .01, **p < .001

Demographic variables explain approximately 12% of variance in PSES-T ($R^2=.12$, $F (6.22) = 5.02, p < .001$). PSES-T was significantly related to years of experience ($\beta=.22, p= .002$) and the socio-economic status of students ($\beta=.20, p < .01$). Years at school and school level were not significantly related with PSES-T.

### Internal Consistency

Internal consistency estimates using Cronbach’s alpha suggested high reliabilities for the total scale PSES-T= .94. In addition, a t-test was conducted to determine the significance of difference between the average item scores of the upper and lower 27% groups and the correlation of the item total score was calculated. Results are given in Table 4.

### Table 4.

**Item Analysis Results**

<table>
<thead>
<tr>
<th>Item</th>
<th>C.I.T. C1</th>
<th>Mean upper</th>
<th>Mean lower</th>
<th>$t$</th>
<th>Item</th>
<th>C.I.T. C1</th>
<th>Mean upper</th>
<th>Mean lower</th>
<th>$t$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.61</td>
<td>7.6</td>
<td>5.2</td>
<td>10.3*</td>
<td>10</td>
<td>.64</td>
<td>8.6</td>
<td>6.3</td>
<td>10.8*</td>
</tr>
<tr>
<td>2</td>
<td>.70</td>
<td>8.2</td>
<td>5.4</td>
<td>12.9*</td>
<td>11</td>
<td>.56</td>
<td>8.3</td>
<td>6.0</td>
<td>8.9*</td>
</tr>
<tr>
<td>3</td>
<td>.58</td>
<td>8.2</td>
<td>5.9</td>
<td>10.9*</td>
<td>12</td>
<td>.78</td>
<td>8.3</td>
<td>5.6</td>
<td>12.7*</td>
</tr>
<tr>
<td>4</td>
<td>.58</td>
<td>8.5</td>
<td>6.0</td>
<td>12.0*</td>
<td>13</td>
<td>.59</td>
<td>8.3</td>
<td>5.8</td>
<td>9.7*</td>
</tr>
<tr>
<td>5</td>
<td>.67</td>
<td>8.4</td>
<td>6.0</td>
<td>11.5*</td>
<td>14</td>
<td>.65</td>
<td>8.7</td>
<td>6.5</td>
<td>10.6*</td>
</tr>
<tr>
<td>6</td>
<td>.75</td>
<td>8.4</td>
<td>6.0</td>
<td>12.5*</td>
<td>15</td>
<td>.53</td>
<td>8.3</td>
<td>6.3</td>
<td>7.3*</td>
</tr>
<tr>
<td>7</td>
<td>.60</td>
<td>7.7</td>
<td>5.2</td>
<td>7.5*</td>
<td>16</td>
<td>.66</td>
<td>8.6</td>
<td>6.7</td>
<td>9.3*</td>
</tr>
<tr>
<td>8</td>
<td>.51</td>
<td>7.8</td>
<td>5.0</td>
<td>8.0*</td>
<td>17</td>
<td>.71</td>
<td>8.1</td>
<td>5.6</td>
<td>9.4*</td>
</tr>
<tr>
<td>9</td>
<td>.72</td>
<td>8.6</td>
<td>6.0</td>
<td>13.0*</td>
<td>18</td>
<td>.67</td>
<td>8.3</td>
<td>6.0</td>
<td>9.5*</td>
</tr>
</tbody>
</table>

*p < .05

1Corrected Item-Total Correlation
As seen in Table 4, for all items in the scale, item-total correlations vary between .51 and .78 and all items presented a significant difference at p<.05 within the lower and upper groups.

**Discussion and Conclusion**

The purpose of this study was to investigate the reliability and validity of a Turkish version of PSES among school principals. Primarily, the construct validity of the 3-factor PSES-T was investigated with CFA. Findings from CFA yielded an unacceptable fit to the data. To our knowledge, no other studies conducted CFA to test PSES’s construct validity. In the next stage, exploratory factor analysis was conducted in order to determine the structure of the PSES with another sample. Although principal component analysis gave similar results with Tschannen-Moran, Gareis (2004) and Nye (2008), a one-factor structure was accepted because the EFA yielded a unidimensional result and CFA did not support a three-factor model.

In keeping with Tschannen-Moran and Gareis’s (2007) findings that there was a high level of correlation between social support within school (staff, teachers, parents, and students) and principal self-efficacy ($r=.42$, p<.01), a medium level of correlation between social support from out of school (superintendent and central-office staff) and principal self-efficacy ($r=.34$, p<.01), the concurrent validity of the PSES was supported by low positive correlations with social support from the superintendent and central-office staff and moderate positive correlations with social support from staff, teachers, parents, and students. To provide further evidence for the validity of the PSES, the relationship between demographic variables and PSES was examined. Results showed that there were no significant relations between years at school, school level, and PSES. These findings are similar with the other research examining the potential associations of PSES with years at school (Costa-Hernandez, 2010; Tschannen-Moran & Gareis, 2004) and school level (Dimmock & Hattie, 1996; Santamaría, 2008). Contrary to the results of other research (Costa-Hernandez, 2010; Tschannen-Moran & Gareis, 2004; Tschannen-Moran & Gareis, 2007), but parallel with the theory, we found a significant relationship between years of experience (Santamaría, 2008; Dimmock & Hattie, 1996), the socio-economic status of students, and PSES. According to Bandura, an individual’s successful past experiences - namely mastery experiences - are the prominent factors that determine self-efficacy (Bandura, 1997).

The results of this study show that the total scale of PSES-T demonstrated good consistency (.94). To provide further evidence for the reliability of the PSES-T, a comparison was made between the average scores of the participants included within the upper and lower groups. Entire items were found to be significant at level p < .05. These findings provide evidence to support the reliability of a Turkish version of PSES.

In conclusion, the present study provided psychometric support for the Turkish version of the PSES. However, this study has some limitations. First, test-retest scores
were not conducted; thus, the stability of the PSES’s parameters and the consistency of participants’ responses could not be established. Second, we used single questions to measure participants’ perceived social support, but using a scale and measuring interpersonal social support indirectly would give more accurate results. Further research would examine the structure of the PSES with similar populations in other cultures.

References


Watts, L., Kolsun, C., Cline, V., & Williams, L. (2011, September 27). *Principals’ sense of efficacy and cultural factors in rural West Virginia schools*. Retrieved from the Connexions Web site: http://cnx.org/content/m41135/1.3/


**Yönetici Öz-yeterlik Ölçeğinin Türkçe Adaptasyonu: Geçerlik ve Güvenirlik Çalışması**

Atıf:
Doi: 10.14689/ejer.2015.60.1

**Özet**


*Araştırmanın Amacı:* Bu araştırmanın amacı Yönetici Öz-yeterlik Ölçeğinin Türkçe versiyonunun psikometrik özelliklerinin test edilmesidir.

*Araştırmanın Yöntemi:* Yönetici Öz-yeterlik Ölçeğinin (YÖÖ) Türk kültürüne uyarlanmasının yapıldığı bu çalışmada ölçeğin yapı geçerligini belirlemek amacıyla açımlayıcı ve doğrulayıcı faktör analizlerini yapılmış, her iki analiz için okul
yöneticilerinden oluşan birbirinden bağımsız iki örneklem grubu alınmıştır. Açıklayıcı faktör analizi için kullanılan ilk örneklemde %11'i kadın % 89'u erkek olmak üzere 150 okul yöneticisi yer almaktadır. Okul yöneticilerinin yarısından fazlası (%60) okul müdürü olarak görev yapmaktadır ve kıdemleri 1 ile 33 yıl arasında değişmektedir ($X = 9.8, Ss = 7.9$). Doğrulayıcı faktör analizi için kullanılan ikinci örneklemde ise 150 okul yöneticisi bulunmaktadır (%10 kadın, %90 erkek) ve kıdemleri ise 1 ile 37 yıl arasında değişmektedir ($X = 8.6, Ss = 7.01$).


Analizden önce her iki örneklemenin normal dağılım gösterip göstermediğini ve çok değişkenli analizlere uygunluğu test edilmiştir. Bu amaçla öncelikle çarşafın ve basılık katsayıları incelenmiştir, bu değerler sırasıyla -.35 ile -1.07 ve -.26 ile -1.15 arasında değişmektedir. Elde edilen değerler örneklemenin faktör analizine uygun olduğunu göstermektedir. Verilerin faktör analizine uygunluğu ayrıca Kaiser-Meyer Olkin (KMO) değeri .88 ve Barlett küreselik testi $\chi^2 = 1207.0$ (p <.001) ile de desteklenmiştir. Araştırma kapsamında öncelikle orijinal ölçeğin 3 faktörü yaptısı snamak amacıyla doğrulayıcı faktör analizi yapılmıştır. Analiz sonucunda elde edilen değerler ($x^2/df$ = 2.80, CFI=.873, TLI=.87, RMSEA=.100, SRMR=.064) öğrencilerin Türkçe versiyonu için 3 faktörü yapının iyi uyum göstermediğini ortaya koymaktadır. Bu sonuçlara dayalı olarak ölçeğin faktör yapısı belirlemek amacıyla açıklayıcı faktör analizi yapılmıştır. Yapılan analiz sonucunda ölçeğin öz değerleri birden büyük 3 faktörden oluşturulmuş bu faktörlerin...
özdeğerlerinin sırasıyla 7.39, 1.46 ve 1.16 olduğu görülmüştür. İlk faktör toplam varyansın % 41’ini daha sonra faktörler ise sırasıyla %8 ve % 6.4’ünü açıklamaktadır. Ölçeğin öz değeri birden büyük üç faktörü olmasına karşın, ilk faktörden sonraki faktörlerin öz değerlerinde ciddi bir düşüşün olması ve ikinci ve üçüncü faktörlerin toplam varyansa yaptığı önemini düşük olması ölçeğin tek faktörü bir yapısı gösterdigine kantı teşkil etmektedir (Çokluk, Şekercioğlu, Büyüköztürk, 2010). Sonuç olarak ölçeğin tek faktörlü yapısını toplam varyansın %41’ini açıkladığı ve madde faktör yüklerinin .50-.74 arasında olması ölçeğin tek faktörlü bir yapı gösterdiğini göstermektedir (Çokluk, Şekercioğlu, Büyüköztürk, 2010).

Ölçeğin güvenirlüğünü belirlemek için cronbach alfa iç tutarlık katsayısı hesaplanmıştır. Ayrıca her bir maddeye ait ortalamanın alt-üst %27’lik gruplarda farklılıkları t-testi ile sınırlı ve bütün madde ile ilgili olan ilişkilerin güçlü bir örnekle üzerinde test edilmiştir. Analiz sonucunda elde edilen uyum iyiliği değerleri (χ²/df= 1.6, CFI=.95, TLI= .94, RMSEA= .06, SRMR=.04) ölçeğin tek faktörlü yapısını doğrulamaktadır.Ölçeğin güvenirliğini belirlemek için cronbach alfa iç tutarlık katsayısı hesaplanmıştır. Ayrıca her bir maddeye ait ortalamanın alt-üst %27’lik gruplarda farklılıkları t-testi ile sınırlı ve bütün madde ile ilgili olan ilişkilerin güçlü bir örnekle üzerinde test edilmiştir. Analiz sonucunda elde edilen uyum iyiliği değerleri (χ²/df= 1.6, CFI=.95, TLI= .94, RMSEA= .06, SRMR=.04) ölçeğin tek faktörlü yapısını doğrulamaktadır. ÖZ-YETERLİK İLE İLGİLİ TEORI (Bandura, 1997) ve daha onceki çalışmaları (Kruger, 1997; Pati & Kumar, 2010; Tschannen-Moran, & Gareis, 2007; Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998; Özdemir, 2010) bulguları öz-yeterliğin sosyal destek ile ilişkili olduğunu göstermektedir. Bu nedenle ölçeğin ölçüt bağlantılarının alınması amacıyla sosyal destek ile olan ilişkisi incelenmiştir. Analiz sonucunda, okul yöneticisinin öğretmenlerin (r= .383), ailelerin (r=.350) ve öğrencilerin (r= .286) aldığı đỡegi ile orta düzeyde pozitif, İl milli eğitim müdürlüğünün (r= .187) ve denetçilerin (r= .185) aldığı destekle düşük düzeyde pozitif ilişki gösterdiği görülmüştür. Ayrıca okuldaqı öğrencilerin genelinin sosyo-ekonomik durumunu, okul kademesi gibi okul ile ilgili değişkenler ve okul duréeünün kimdir ve okuldaqı çalışma süresi gibi okul duréeının ile ilgili değişkenlerin öz-yeterliği ne düzeyde yordadığı belirlenmeye çalışılmıştır. Analiz sonucunda, kimdir (β= .221) ve okuldaqı öğrencilerin genelinin sosyo-ekonomik durumunun (β= .202) yönetic öz yeterliğin anlamli yöndiçlerin olduğu, okuldaqı çalışma süresi ve okulun kademesi değişkenlerinin ise öz-yeterlik üzerinde anlamlı etkiye sahip olmadığını göstermiştir.
Teachers’ Expectations and School Administration: 
Keys of Better Communication in Schools

Engin ASLANARGUN**

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Abstract

Problem Statement: The quality of education carried out in schools depends largely on the performance of teachers and school principals in cooperation. It is possible to say that a qualified education of students depends on the performance and compliance degree of these two groups. In this process, teachers’ having the primary responsibility for teaching in compliance with school administration and supported by administration is very critical. For a more qualified education/teaching school, principals should support their teachers as an institutional leader responding to their expectations and needs.

Purpose of the Study: The aim of this study is to determine teachers’ expectations from school principals so that they can do their jobs better. Teachers included in the study were asked what they have expected and hoped from principals while they were teaching.

Method: A qualitative research methodology was employed, using phenomenology to collect and analyze the interpretations and meanings of teachers’ expectations as drawn from their responses to open ended semi structured questions. The research group consists of volunteer teachers who were employed in the district and province of Duzce city in Turkey.

Teachers were invited to fill out the open ended form consisting of a single question via e-mail. A total of 677 volunteer teachers participated in this

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study: some of whom gave more than a single response, whereas some preferred short responses.

Findings and Results: In the finding section of the study, which aimed to investigate and analyse the teachers’ expectations and opinions, a major category and eight subcategories were identified. When analyzing the expectations of teachers from principals, it was evident that nearly one-fourth of the expectations were centered on the subcategories of comprehension and support (25 percent). Subsequently, satisfaction with the current administration (21 percent), leadership (13 percent), justice and equality (12 percent), communication (11 percent), physical equipment (9 percent), school development (9 percent) and no expectation (2 percent) followed. Consequently, value based informal behaviors such as appreciation, cooperation, consulting, respecting, fairness, confidence, and motivation were emphasized most often by the teachers.

Conclusions and Recommendations: The concepts and themes generally focused on human relationships, meaning that behaviors of principals should be shaped by considerations of leadership and communication. Communication, empathy, and initiative are the concepts teachers paid the most attention to throughout the study, and these are the psychological characteristics that principals need to adapt most whatever their preferred leadership style has been. Having a considerate style of administration and providing support for teachers were the core recommendations of the research.

Keywords: Principal, instructional leadership, school improvement, justice and equality

Introduction

The main competencies that school principals should have are shaped in the context of leadership skills. Several basic skills school principals should have include an understanding the organizational concept, analysis of the problem, demonstrating a sample in actions and behaviours, caring about the situation especially differences in decision making processes, and looking after these in the process of adaptation. In order to create a strategic perspective, school principals must consider the all-encompassing, multi-faceted context of administrative practices with their uncertain, massive nature (Glatter & Kydd, 2003, p. 233; Hoy & Miskel, 2012).

The main trends and approaches (such as accountability, new public management, student-centered leadership, standard criteria, information society, globalization, and multiculturalism) change the context of educational administration and also cause discussions about standardization studies on teacher qualifications. It is impossible to recognize the significant problems in society, the basic ideological movements, conflicts, core values, value crisis, economic development, job opportunities, significant deficiencies in adult life, and the mutual
cause-and-effect relationship of change orientation don’t exist among school principals. Turning conflicts into synergistic work environment depends on the administrative approach when responding to the needs and expectations of teachers, especially as it contributes to student learning.

The instructional leadership approach emerged in the 1980s as a result of effective school movements. This theory proposed an accountability phenomenon to assess school principals' ability to teach, as it is most important when considering school leadership, and gives the brunt of the responsibility of education and training activities to school principals (Hallinger, 2005, p. 223). Curriculum leadership, a concept developed in twenty-first century, is garnering increased interest with its intersection of pedagogy and school leadership. This approach is supported by the previous leadership styles of educating managers and test information management issues (Henderson & Slattery, 2007, p. 4). Researchers who state that in recent years the transformational leadership approach is more realistic and effective than other approaches underscores sensitivity to environmental impacts and adapting to changing issues (Leithwood & Jantzi, 2005, p. 194). School principals are responsible for explaining students’ school success and failures. Characteristics of administration are not the only factors that distinguish effective instructional leaders from others; they are beliefs and attitudes underlying duty perception (Krug, 1992, p. 441).

**Principals as Instructional Leaders to Support Teachers**

In research related to effective instructional leadership behaviors (Blase & Blase, 2000, p. 135), two basic behaviours of school principals have come out. These are concerned with the levels of school principals’ promotion of learning in the classroom and the level of their effect on learning. Teachers’ opinions are summarized as encouraging teachers to assess the teaching-learning environment critically and support the professional development of teachers. According to this statement, effective institutional leaders engage in constructive suggestions, provide positive feedback, are a model, motivate teachers in creative and inquisitive learning, and give verbal praise (MacNeill, Cavanagh & Silcox, 2003, p. 4; Sisman, 2011; Sharma, 2012). It is also a fact that when principals reported higher levels of instructional leadership, they were also more likely to develop a professional-development plan for their school, observe teaching in the classroom as part of a teacher’s formal appraisal, and report high levels of mutual respect among colleagues at the school (Schleicher, 2015).

School principals’ support for teachers in accordance with the organizational aims and their creating an innovative school culture is closely related to whether a school principal’s leadership behaviors are encouraged by the education system and school culture. In determining the characteristics of effective schools, subjects such as leadership attributes of principals, quality of teaching in schools, learning climate and culture, teacher behavior and evaluation criteria are emphasized. It was emphasized that the school principal’s instructional leadership behaviours should cover these issues. It is expressed that in such schools, teachers participate in teaching and learning activities more voluntarily, they are proud of their school and
they may pursue higher education. The importance of a solid emotional environment has recently been emphasized more frequently (Edmonds, 1982, p. 10; Palmer, Walls, Burgess & Stough, 2001, p. 8; Bas, 2012, p. 13; Eres, 2011, p. 11).

School principals’ efforts to improve the quality of education is the essence of the concept of instructional leadership. In a study conducted in Asian countries, the fulfillment of learning inside and outside schools, the development of moral values, shared national values between students and teachers are associated with instructional leadership. Some research shows that school principals’ leadership behaviors have a very limited effect on students’ success and commitment to school. Instead, school leadership is associated with organizational learning where in several complex variables are governed as an orchestra and systematic change (Goleman, Boyatzis & McKee, 2001, p. 44).

There are three basic points of school leadership are associated with the instructional leadership, p. whether the school leader focuses on practical concerns, has a good theoretical background and forms a school culture (Glasman & Glasman, 1997, p. 4). In practice, it is emphasized that school principals should guide their teachers at school, motivate students and teachers, and be sensitive to their problems and expectations. Nonetheless, Cuban (1995, p. 6) states that the performance of teachers is different from other organizations; thus, education is difficult to be measure and control. Cuban also emphasizes the diversity of other factors that affect a good teaching and effective learning environment. Information about the program and teacher’s dominance in the process of learning and teaching which some of the main roles of instructional leadership are considered as a weighty responsibility that cannot be performed by any principal. On the other hand, in increasing students’ reading and math achievements, especially those from a lower socio-economic background; teachers’ perceptions of school principals as an instructional leaders is accepted as important (Podsakoff, MacKenzie, Paine & Bachrach, 2002; Hallinger, 2012).

Although the research findings of this study—determined by comparing 27 responses using meta analysis how that principals’ different leadership behaviors do not have a direct and meaningful effect on students’ school achievement. It is suggested that educational leaders’ effectiveness could rise to the extent that they move closer to the essence of the teaching-learning process and its meaning. The aim of the reform initiatives at the stage of policy implementation, to what extend teachers will be authorized in the decision-making process of the implementation process, which resources will be available, and which opportunities will be presented for the required knowledge and skills are shaped by the school principal’s leadership behavior (Leithwood, Steinbach & Jantzi, 2002; Robinson, Lloyd & Rowe, 2008, p. 670). Research based on academically unsuccessfully students drew attention to principals and teachers. In the schools that have a high level of success, both teachers’ and school administrators’ attendance and interest in the school are high. For this purpose, school principals must display a good model of leadership among teachers, encourage teamwork to achieve school objectives, show a flexible
management model to improve effectiveness and share responsibilities with their staff (Nettles & Herrington, 2007; Peariso, 2011).

Consequently, research on school effectiveness and student achievement in the 1980s emphasizes the necessity of school principal’s being an instructional leader. Despite the shift to transformational leadership and teacher leadership towards the end of 1990s, the quality of learning in schools and student achievement has been discussed continuously, and institutional leadership has been a new paradigm in terms of school leadership as learning leaders in the early years of the 21st century have considered the concept of accountability (Hallinger, 2009, p. 3). There is an expectation that teachers teach students to learn and view this as an educational act. Also, each student must be approached with high expectations for success (SJEC, 2015). While instructional leadership behaviors impact students’ achievement indirectly, it has a direct impact on teachers and school culture. Instructional leadership is somewhat less effective in delineating all factors affecting student achievement, but the effects of all variables—such as the size of the school and students' socioeconomic status—should be surveyed (Gaziel, 2007, p. 23).

School principals should fulfill their management tasks, first and foremost as a human being, a leader and a citizen in a socio-psychological manner. School principals are responsible for managing the school in accordance with laws and regulations, and communication with teachers is also informally important to administering to the school effectively and creating a successful educational environment (Cherian & Daniel, 2008, p. 8; Aslanargun & Bozkurt, 2012). It may be said that a management approach, with the administration acting together with the teachers at the point of the internalization of goals, that provides an environment for convergence and cohesion among the shareholders of the school requiring and valuing all staff members in order to be most effective. At this point, teachers’ expectations and perspectives are converted to a form that provides a better learning environment for the students by aligning directly with the school principal’s management style and human perspective.

The aim of this study is to determine teachers’ expectations of school principals so that they can do their duties better. For this purpose, this study intends to evaluate, investigate and analyze school principals’ behaviors in terms of an instructional leadership approach.

Method

Research Design

This study employed a qualitative research methodology of phenomenology to collect and analyze the interpretations and meanings of teachers’ expectations, drawing from an open-ended, semi-structured questions. The data were gathered through an open-ended form that was developed by the author and validated by other experts who have held leadership positions among the faculty of education.
Study Group

The research group consisted of volunteer teachers who were employed in the district and province of Duzce city in Turkey. In order to avoid limiting the teachers’ expectations and to collect a broad scope of opinions, all the volunteer teachers were invited to fill out the open-ended form consisting of a single question via e-mail. They represent a highly heterogeneous group in terms of subjects, school types, and length of service, seniority and gender. Since the form did not ask for information concerning such characteristics so as to allow teachers to respond freely, there were no explanatory information stated here in detail. The 677 volunteer teachers who participated in the study varied their responses from a single, large response to a series of shorter responses.

Research Instrument and Procedure

The related literature detailed above was reviewed in the process of form development and core concepts were defined related to teachers’ expectations and opinions about principals. Consequently, two open-ended, semi-structured questions were developed by our research group. Making the questions open-ended and semi-structured allowed the teachers to freely express their subjective interpretations. The meanings of their responses provided us with an opportunity to gain an understanding of what teachers value in administration.

Validity and Reliability

The concepts of validity and reliability in qualitative research design have been criticized and found to be dogmatic as a result of positivist hypothetical deductive reasoning; thus credibility and transferability are more common concepts preferred by qualitative researchers (Willis, 2007; Corbin & Strauss, 2008; Yıldırım & Simsek, 2008). Moreover, the related literature was examined to create a contextual frame, the procedures were explained clearly and in detail, all of the data was written without any interpretation; raw data and coded data were preserved by the researcher and other researchers were welcomed to examine it.

Data Analyses

Depending on the theoretical sampling, the analysis of the data was run concurrently with the first data gathered. Then the latter form was reconstructed in the light of former analysis. In the process of analyses, participants had the chance to reorganize their ideas and deepen their thoughts by asking and answering the questions while responding to the open-ended form simultaneously (Yıldırım & Simsek, 2008). In the process of analyzing the forms, the four stages described by Marshall and Rossman (1999), p. “organizing the data,” “generating categories, themes and patterns,” “testing any emergent hypothesis” and “searching for alternative explanations.” This analysis aims at identifying central themes in the data, and searching for recurrent experiences, feelings and attitudes, so as to be able to code, reduce and connect different categories into central themes. The analysis was conducted by the second author of this paper and was validated by structured analysis and through peer review by the first author.
Results

The finding section of the study is aimed at investigating and analysing the teachers’ expectations and opinions along a major category and eight subcategories. The categories that most reflected the teachers’ expectations and opinions are presented first, followed by the subcategories and direct quotations.

Expectations for Principals

Teachers were asked to present their expectations from principals and tried to investigate their opinions related to administration in this section. In order to do their job better, teachers’ opinions were investigated in order to determine their expectations. Teachers’ expectations were revealed in Table 1 related with administration and principals.

Table 1.
Expectations of Teachers from Principals

<table>
<thead>
<tr>
<th>Themes</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Comprehension and Support</td>
<td>383</td>
<td>25</td>
</tr>
<tr>
<td>2 Satisfaction</td>
<td>319</td>
<td>21</td>
</tr>
<tr>
<td>3 Leadership</td>
<td>200</td>
<td>13</td>
</tr>
<tr>
<td>4 Justice and Equality</td>
<td>194</td>
<td>12</td>
</tr>
<tr>
<td>5 Communication</td>
<td>167</td>
<td>11</td>
</tr>
<tr>
<td>6 Physical Equipment</td>
<td>132</td>
<td>9</td>
</tr>
<tr>
<td>7 School Improvement</td>
<td>97</td>
<td>7</td>
</tr>
<tr>
<td>8 No Expectation</td>
<td>36</td>
<td>2</td>
</tr>
<tr>
<td>TOTAL</td>
<td>1528</td>
<td>100</td>
</tr>
</tbody>
</table>

When analyzing the expectations of teachers from principals in this section, it was apparent that nearly one-fourth of the expectations were centered on the subcategories of comprehension and support (25 percent). Subsequently, satisfaction with the current administration (21 percent), leadership (13 percent), justice and equality (12 percent), communication (11 percent), physical equipment (9 percent), school development (9 percent) and no expectation (2 percent) followed. Direct quotations of these subcategories are presented in detailed.

Comprehension and support. It was evident that teachers’ expectations basically centered on the subcategories of comprehension and support. Additional subcategories include concepts of support, empathy, respect, reward and value.
Teachers generally have demands of principals’ comprehension about education and training in schools, to value them, and to be emphatic. Here are some examples of teachers’ direct quotations related with the subcategories:

“display comprehension and support teachers”
“try to understand teachers”
“give confidence to teachers and support them”
“not to forget that they were teachers once”
“help teachers academically”
“create peaceful school settings”
“avoid demotivating teachers in schools”
“appreciate teachers and give priority to teachers in schools”
“do activities to create enthusiasm for teachers”
“help teachers to educate in a respectful and peaceful setting”

Teachers generally tended to sense that principals are ready to support teachers and value them in order to do their job better. It was also revealed that psychological factors have shaped expectations of teachers.

Satisfaction. Twenty-one percent of teachers included in the research have revealed that they were satisfied with their school administration. Direct quotations of teachers under these subcategories are presented here:

“I am satisfied with school administration, especially with the principals; he continues as usual”
“school administration recognizes me as much as possible”
“I don’t need to make any comment since they meet my expectation”
“I have been working in a most tranquil manner during my 19 years of teaching”
“I think the principal is trying his best to manage schools cooperatively”
“I feel myself as a part of an honest, equal, reasonable, positive team in school”

Teachers who revealed that they are satisfied with their current school administration displayed appreciation, support, and harmony towards their principals.

Leadership. Teachers’ expectations of 13 percent have centered on leadership. It was hoped that principals would recertify themselves, use initiative and try their best to solve educational problems within the school. Here are the direct quotations of teachers related with these subcategories:

“principals should adopt a way of coordinating and leading more than the traditional manner of administration”
“they need to provide such a setting that teachers feel more than an authoritative style”

“principals should focus on process, not products.”

“they try their best to improve the quality of education instead of pseudo and summative supervision of education”

“they need to manage meetings better and lead effective decisions”

“some think that keeping rules mean successful administration, truly it means to keep the status quo and go round in circles”

The teachers emphasized that the principals should be a coordinator, act as an instructional leader, focus on the process of actions more than ends, be eager to take risks and responsibilities, manage meetings at schools, always look forward and renew themselves.

**Justice and Equality.** Twelve percent of teachers focus on justice and equality when considering the administration at schools. They also stress on behaving when making decisions and avoiding ideological consideration. Quotes from the teachers about these subcategories are as follows:

“treat everyone equally”

“treat teachers equally when assigning educational responsibilities”

“avoid ideological consideration and favouritism”

“hardworking and volunteer teachers should not be overloaded”

“justice is the faith of state; thus, everyone who is charged with administration should be fair”

When considering the expectations and opinions of teachers, it has been stated that teachers should be treated equally and fairly when assigning subjects and courses, and hardworking teachers should not be overloaded. Furthermore, demands of more democratic administration and anti-favouritism and anti-ideological consideration was emphasized by teachers.

**Communication.** The communication skills of principals were brought to the forefront by 11 percent of teachers. Communication, respect, fairness and goodwill were the basic concepts of this subcategory, as seen in the following quotes:

“They should not prefer to talk by themselves only, sometimes consult the teachers”

“They should cooperate with teachers when assigning responsibilities and tasks”

“They need to encourage teachers in order to overcome intimidation and depression”

“They should be careful when criticizing teachers ”
Teachers usually hope their principals will cooperate in schools and respect teachers’ opinions when assigning tasks and responsibilities and more tolerant in schools.

**Physical Equipment.** Teachers expect administrators to focus on physical matters, as evidenced by a nearly 9 percent result. Technology, paintings, white wash, and laboratories are physical and supporting materials that teachers talked about.

“Schools need to be enhanced physically”

“Educational materials need to be enriched”

“More resources should be invested in computer technology”

Technology and educational materials are the basic equipment that teachers need at schools.

**School Improvement.** Seven percent of teachers expected principals to focus on school improvement. Students’ success, a disciplined atmosphere in schools, improving school-family cooperation and more social activities were mostly emphasized by teachers.

“Principals should basically focus on students’ success in schools”

“Supervision could only be performed for quality of education”

“A disciplined atmosphere and quality-based settings should mostly be preferred”

“More and more activities should be planned for students and parents”

It was highly emphasized by the teachers that principals’ basic responsibilities should focus on school improvement, including instructional supervision and educational-quality based discipline. Four percent of teachers alleged that they had no expectations from principals about school administration.

**Discussion and Conclusion**

According to the results of this study investigating the expectations of teachers that there should be more value- and support-based administration towards teachers by principals. It has emerged that some psychological consideration and value-based informal behaviors such as appreciation, cooperation, consultation, respect, fairness, confidence, and motivation have been most emphasized by teachers. The fact that the concepts and themes generally focused on human relationships means that the behavior of principals should be shaped by considerations of leadership and communication. These implications have also been supported by similar studies that principals, as the basic administrative figure in schools, should guide teachers, to motivate teachers and students for better teaching and learning settings, to be sensitive to their expectations and needs, to be aware of the visions of schools, and
try to transform school culture for more qualified education (Glasman & Glasman, 1997, p. 4).

The socio-cultural and socio-economical status of students that required principals and teachers to spend more time on such issues have been widely debated since principals have limited time for an instructional roles in schools (Hausman, Crow & Sperry, 2000); focusing more on students’ success has sometimes caused less time for teachers’ development. However, so-called studies and current research have also asserted that expectations and needs of students’ and teachers’ tend to be met through teaching and communication in schools (Blase & Blase, 2000, p. 135; Goleman, 2000, p. 87; Goleman et al. 2001, p. 44; Palmer et al., 2001, p. 8; MacNeill et al. 2003, p. 4; Hallinger, 2005, p. 235). Since being a good principal generally does not mean being a good teacher, teachers sometimes have positive feelings towards instructional leadership roles of principals since more cooperation-based administration, including teachers’ increased participation in the decision-making process in schools. Furthermore, some research (Nettles & Herrington, 2007) emphasizes a direct relationship between principals’ administrative style and behaviors with students’ success have led to increased attention on principals and teachers in last decades. In this respect, the key role of principals is to support the administrative team, while teachers’ role is to create and support settings in order to solve problems at schools cooperatively and democratically since it is a fact that (Kilinc, Cemaloglu & Savas, 2015) leadership and teacher professionalism are two interrelated dimensions of that principals should try both directly and indirectly (Bilge, 2015) to foster and support professional development of teachers in Turkey.

Having a considerate style of administration and providing support for teachers were the core results of this research. It has also emerged in other studies (Blase & Blase, 2000, p. 135) that good administration entails advising teachers in a constructive manner, providing positive feedback, motivating creative and quizzical teaching, and giving verbal praise. Other steps principals can take to create constructive and creative atmosphere together with teachers at schools (Gaziel, 2007) include emphasizing the psychological climate at schools (Palmer et al., 2001, p. 8); encouraging teachers to be involved in the decision-making process and supporting them in taking an active role in administration (Robinson, Lloyd & Rowe, 2008, p. 638). Principals, as an instructional leader, have more power and leadership directly on teachers rather than being a force for students’ school success in that they provide support and encouragement for teachers to improve teaching and learning.

Some teachers in this study have asserted that they were satisfied with the current administration in their schools simply they feel secure in their school climate and as a member of a team rather than feeling a principal’s support in education. It has also been (Bas, 2012, p. 13) stressed that teachers who built confidence and communication with their school administration participated in the school process more, tried their best for teaching and were proud of being a member of that school. Accordingly, it seemed that there is close relationship between the quality/effectiveness of school leadership and teachers’/students’ commitment to school and satisfaction. Power relations within schools, in comparison with the past,
have begun to change in favour of teachers, students and families rather than being devoted to principals some decades ago (Krug, 1992, p. 440).

One of the basic functions of school is to provide equal education to people who belong to different socio-economical situations (Glasman & Glasman, 1997, p. 5). Teachers’ expectations emerged in this study emphasizing the equal and fair treatment in schools of disadvantaged groups in society that could be subjected to equal and fair educational settings due to equal educational opportunities in schools. Treatments and applications in schools should pioneer equality and fairness in society; in other words, teachers faced with equal and fair treatment in schools could portray this expectation to students and society and thus provide more professional support for teachers and lead them to self-development (Blase & Blase, 2000, p. 135).

Some of the teachers’ expectations and opinions have focused on the communication skills of principals, including exchanging ideas and encouraging a shared role in decision making. When considering similar studies that examine the leadership characteristics of principals, shared instructional leadership is the key of school leadership. Communication, empathy, and initiative are the concepts teachers paid the most attention to throughout the study, and these are the psychological characteristics that principals need to adapt most whatever their preferred leadership style has been (Goleman, 2000, p. 87; Goleman et al., 2001, p. 44; Hallinger, 2005, p. 235). Principals’ leadership behaviours including communication and interaction are of greatest importance than other motivational techniques (Leithwood et al., 2002).

On the base of school improvement, including enhancing students’ academic success and the quality of education, were in some respects supported by similar studies. In the studies that were investigating what types of teachers’ behaviors and attitudes affect school success and the level of influence have alleged that (Blase & Blase, 2000, p. 135; MacNeill et al., 2003, p. 4) pedagogical leadership could be of critical importance, which emphasizes learning in-class cooperatively with teachers. In spite of the fact that principals have limited power and influence directly on students’ success and were criticised via comprehensive comments such as the romanticism of leadership, leadership behaviours of principals could sometimes be comprehensive enough to cover school effectiveness and students’ academic success (Edmonds, 1982, p. 10).

References


**Öğretmenlerin Görevlerini Daha İyi Yapabilmeleri İçin Okul Müdürlerinden Beklentileri**

**Atıf:**
Doi: 10.14689/ejer.2015.60.2

**Özet**

*Problem Durumu:* Okullarda gerçekleştirilen eğitim öğretmen hizmetlerinin niteliği büyük oranda öğretmen ve yöneticilerin sergilediği performansa bağlıdır. Hizmet alan veya eğitim öğretmen gören öğrencilerin bu iki grubun sergileyeceği performans ve uyum ölçüsünde nitelikli yetişebileceklerini söylemek mümkündür. Bu süreçte öğretmen ile birinci derecede sorumlu olan öğretmenlerin okul yönetimi ile uymu...
Araştırmanın amacı: Bu araştırmanın amacı öğretmenlerin görevlerini daha iyi yapabilmeleri için okul müdürlüklerinin beklentilerini tespit etmektir. Bu amaç yönelik olarak okul müdürünün davranışlarının öğretim liderliği yaklaşımlar açısından değerlendirilmesi, irdelenmesi ve analiz edilmesi hedeflenmiştir.

Araştırmanın Yöntemi: Bu araştırma nitel araştırma yöntemlerinden olgu bilim desenine göre tasarlanmış ve veriler açık uçlu sorulardan oluşan bir görüşme formu aracılığıyla toplanmıştır. Derinlemesine bilgi toplayabilmek ve katılmaları çeşitli bir madde ile sınırlamamak için açık uçlu sorularvolentlendi ve konu hakkında söyleme istediğiniz konusuna tamamıyla özgür olmaları amaçlanmıştır. Çalışma grubu 2013 yılında Düzce il ve ilçelerinde görev yapan bütün öğretmenlerden oluşmaktadır. Üniversitelerine bağlı fakülte ve yüksekokullara devam eden 348 öğrenci araştırma grubu olarak belirlenmiştir. Braş, kademe, il, ilce, cinsiyet ve kıdem gibi herhangi bir sınırlama olmaksızın bütün öğretmenlerin konu hakkında
görevlerini almak için e-mail ile veriler toplanmıştır. 677 öğretmen açık uçlu sorulardan oluşan sorulara cevap vererek araştırıraya katılmıştır. Öğretnenlerin görevlerini daha iyi yapabilmeleri için okul müdürlerinden beklentileri ve okul yönetiminde olması gereken nitelikler konusunda öğretmen görüşleri alınmış ve analiz edilmiştir. Görüşme formu hazırlanma sürecinde ayrıntılı literatür taraması yapmış ve öğretmenlerin okul yönetimi hakkındaki beklenti ve görüşlerine ilişkin temel kavramlar tespit edilmiştir. Verilerin analizinde betimsel ve içerik analizi yöntemi kullanılmıştır. Buna göre elde edilen veriler düzenlenerek kodlanmış, kodlanan verilerden temalar oluşturulması yoluna gidilmiş ve bu doğrultuda bulgular tanımlanmış ve yorumlanmıştır. Kavramsal çerçeve ile uyumlu veriler bulgular halinde tanımlanmıştır. Iki araştırmacı tarafından bağımsız olarak yürütülen analizler sonunda ulaşılan ortak kavramlar ve temalar araştırma bulguları olarak sunulmuştur.


Araştırmannın Sonuçları ve Öneriler: Okul müdürlerinde bulunması gereken niteliklerle ilgili olarak liderlik, kariyer, liyakat, nezaket, dürüstlük, adalet, hoşgörü, özveri gibi
hususların öğretmenlerce dile getirildiği görülmektedir. Genel anlamda insan ilişkileri merkezli kavram ve temaların ortaya çıkması okul müdürlerinde olması gereken en temel niteliklerin iletişim becerisi çerçevesinde şekillendiğini göstermektedir. Bununla birlikte etik ve kültürel liderlik temelli değerlerin on plana çıkması formal davranışlar ve yetkilerin yanı sıra informal ve insan merkezli davranış kalıplarının okul müdürleri için öncelikli olarak dile getirildüğünü söylemek mümkündür.

Anahtar Kelimeler: Okul müdürlü, öğretim liderliği, insan ilişkileri, değerler
Purposes, Causes and Consequences of Excessive Internet Use among Turkish Adolescents

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Abstract

Problem Statement: Excessive internet use, particularly problematic and negative consequences of internet use, is rapidly increasing among children and adolescents throughout the World and in Turkey. While the internet provides potential advantages for users in terms of the academic support, sharing ideas & feelings, and freedom of expression, it also has some adverse effects such as wasting time, exhibiting antisocial behaviors, and causing relationship problems. Excessive use could also be manifested as absenteeism, academic failure and problems in interpersonal relationships with other students. In this context, determining the motivations behind the excessive use of the internet could be beneficial in an educational setting.

Purpose of the Study: The purpose of this study is to determine the aims, causes and consequences of excessive internet use among adolescents and examine the aims of excessive internet use in terms of gender and grade level.

Method: In this study, a quantitative method was used as the research design. As the research aims require in-depth opinions, data triangulation was also used. The study group consisted of 91 high school students who use the internet excessively. The study group were selected by screening 1,587 students living in the Istanbul province during the 2012–2013 Academic year who were internet users for “41 hours or more a week.” Data was collected by the Internet Use Purposes Scale (IPUS) and a semi-structured questionnaire.
Findings: The purposes of excessive internet use among these adolescents were socialization, learning and general culture, meeting psychological needs, entertainment, and education. There are a significant differences between the opinions of the adolescents in the entertainment and learning & general culture sub-dimensions in terms of gender and in the psychological needs sub-dimension in terms of grade level. Causes of excessive internet use are grouped under the main categories of learning and development needs, socialization need, psychological reasons and seeking entertainment. Consequences of excessive internet use fall under the main categories of social, physical health, psychological and mental problems.

Conclusions and Recommendations: In view of the purposes, causes and consequences of excessive internet use in adolescents, the need to socialize and learn are emphasized in terms of purposes and causes. Boys use internet excessively more often than girls for the aims of entertainment and information gathering. Psychological needs are prevalent in 9 and 12 grades; excessive use causes multifaceted adverse effects on adolescents, including social, physical, academic, psychological and mental problems. In this context, meaning of “knowledge” and “socialization” for the adolescents should be researched by the academia. Programmes should be designed to meet the students’ learning and psycho-social developmental needs at schools and in real life. Artistic, sports and cultural activities must be increased in real life and school settings.

Keywords: Internet addiction, adolescent, guidance and psychological counseling, school psychology

Introduction

The young generation now uses electronic tools more than ever to communicate with their peers (Baso, 2008). Just because these cyber children are equipped with technology does not necessarily mean that they can use it with equal maturity (Myers, McCaw & Hemphill, 2011). While the internet provides potential advantages for educational institutions in terms of the students’ access to knowledge and information previously unaccessible, it also proves to have some adverse effects such as wasting time or antisocial behavior (Hazelhurst, Johnson & Sanders, 2011). This conflict regarding internet use is described as “two sides of the same coin” (Ling, Ramadass, Altaher & Arjuman, 2011).

Particularly, excessive internet use during adolescence is gradually increasing. Excessive use brings with it unfavorable academic, social and psychological consequences as well as the risk of internet addiction. Favorable aspects of the internet can be described as a "meeting point of people across the globe having the same understanding, freedom of expression, comfort to ease frustrations” (Ling et al. 2011), ability to communicate with people sharing same interests, abilities and values
(Barg & McKenna, 2014), increased communication, information sharing, and academic advantages (Balta & Horzum, 2008). On the other hand, excessive internet use leads to psychological, social and academic problems (Young, 1998, as cited by Wanajak, 2011, iii).

Children and adolescents are the most frequent and widespread users of technology. Also, they also constitute the largest group exposed to the effects and risks as they have yet to complete their development process (Watson, 2005; Brey, 2006; Xiong, 2011; Karaman, 2013). A study has revealed that 29% of internet users are at risk of developing addictive internet behaviors (Ling et al. 2011). Another study conducted on an adolescent group of 11–16 year olds in 25 European countries has found that 25% of the adolescents participating from Turkey show most of the excessive internet use symptoms and that 2% of the Turkish participants are among the five countries that show all symptoms (Smahel, Helsper, Green, Kalmus, Blinka & Olaksson, 2012; Lobe, Livingstone, Olaffstone & Vodeb, 2012).

The literature describes use of internet with negative consequences as “pathological internet use” (Young, 1998; Watson, 2005), “problematic internet use” (Tam & Walter, 2013), “Internet use disorder” (Hinic, 2011), etc. However, the extent of adverse effects of internet use on adolescents depends on the time spent on internet, the purpose and intention, and excessive and uncontrolled use. Therefore, this study prefers to use the term “excessive internet use.”

“Excessive internet use” is described as “obsessive, uncontrolled, excessive and problematic behavior arising from use of digital technologies” (Lobe, et al., 2012). Excessive internet use not only means use of the internet for extended periods, but also a condition of “inability to control online activities, with an emphasis on negative consequences arising from lack of self-control” (Smahel et al., 2012) “Excessive and inefficient use” of the internet is considered to be a “symptom of internet addiction” (Hansen, 2002), a “potential addiction” (Griffiths, 2000). It is a problematic condition in the frame of its “adverse effects on balanced life”, “posing an addiction risk”, “self-control ability in online activities”, and “use with negative consequences” (Watson, 2005; Brey, 2006; Xiong, 2011; Smahel et al., 2012). Excessive internet use in children and adolescents is under scrutiny across the world in terms of its adverse effects, hazards and addiction risks. A large-scale study conducted on children and adolescents of 9–16 years of age in 25 European countries has revealed that Turkey, Spain, Ireland and Portugal are the countries in the primary group to which excessive internet use poses as an important problem, despite their low level of internet use (Lobe et al., 2012).

Excessive internet use is not only associated with the time spent on internet. Nevertheless, time spent on internet is one of the measures to determine excessive use or addiction. Use of the internet for 40 hours or more a week suggests excessive internet use and internet addiction. Internet use for more than 40 hours a week except for professional use signals the presence of an internet-use disorder (Hinic, 2011). A typical internet addict spends 40–80 hours a week on the internet and may
not even move away from the computer up to consecutive 20 hours (Öztürk, Odabaşıoğlu, Eraslan, Genç & Kalyoncu, 2007).

Favorable or unfavorable effects of excessive internet use on users are not only associated with the time spent but also with the intention and purpose. “Intention behind the behavior of internet use,” “controlled internet use” (Ling et al., 2011), personal characteristics (Weinstein & Lejoyeux, 2010), social anxiety, family factors, and the user’s most common types of use are important factors in determining the advantages and disadvantages of internet use for users.

The literature groups the research on adolescents’ purposes of internet use under some main headings. Adolescents use the internet for purposes of education, learning and information dissemination (Wanajak, 2011), communication (Livingstone & Bober, 2004), entertainment (Wanajak, 2011; Deniz, 2010), gaming and gambling, (Griffiths, King & Delfabbro, 2009), socialization and psychological needs (Watson, 2005), etc. A study conducted by Aydın (2011) on 280 high school students investigated purposes of internet use among adolescents under the headings of homework/research, gaming, communication/chat and cyber-crimes. Adolescents are expected use the internet for academic success and to support their classes; however, they use it mostly outside school (Donoso & Roe, 2006) for non-academic purposes such as avoiding boredom, sexual content (Griffiths, 2000) and entertainment (Lobe, et al., 2012; Donoso & Roe, 2006). A study conducted by Livingstone and Bober (2004) on 1,511 students of 9–19 years of age has indicated that children and adolescents use the internet primarily for education and informal learning and secondarily for communication and participation. According to the opinions emphasizing socialization and making new friends on internet, while internet addicts use the internet for building new relationships, non-addicted users use it to maintain their existing relationships (Chou & Hsiau, 2000; as cited by Watson, 2005). Individuals tend to use the internet to avoid stress and may develop internet addiction when they feel isolated and alienated and seek satisfaction (Watson, 2005).

In the context of excessive internet use, the user’s characteristics, the intention behind internet use and purposes of use are observed to be significant. According to Watson (2005), young people have developed a multi-dimensional communication model and created a circle for themselves. On the other hand, families and teachers are quite uninfluential and weak against this circle created by young people. Educators and experts must properly evaluate the causes of internet use. Frequency of internet use among adolescents has reached such a magnitude that they are able to connect to the internet on their phones even during classes most of the time, which can lead to disciplinary procedures and violent events due to misunderstandings over virtual communications, which causes adverse effects on young people's academic lives and family and social communications. Excessive internet use poses as a serious psychological threat to the psychological health of young people. Unless measures are taken, excessive internet use may become a phenomenon with a risk of turning into an addiction among children and adolescents, thus leading to unfavorable psychosocial, physical, mental and academic effects. In this context, it is
crucial to understand the purposes, causes and consequences of excessive internet use among young people.

This study aims to determine the purposes, causes and consequences of excessive internet use among adolescents and determine their purposes of internet use based on variables of gender and grade level. For this purpose, answers to the following questions were sought.

1. What are the purposes of internet use among the adolescents with excessive internet use?
2. Do their purposes change based on their gender and grade level?
3. What are the causes of excessive internet use?
4. What are the consequences of excessive internet use?

Method

Research Design

The method employed was screening as the present study aims to describe the existing situation. The study was conducted using a quantitative research method. As the sub-objectives require qualitative data containing in-depth opinions, data triangulation was achieved in data collection by using a semi-structured form.

Study Group

Three criteria were considered when determining the study group. First, internet use of participants for 41 hours or more a week was adopted as the risk level for internet addiction. Second, students from different high school types were represented. Third, participation on voluntary basis was sought in the study. The study group consisted of 91 volunteer students who were selected through screening 1,587 students in the three sub-provinces of the Istanbul Province in the 2012–2013 Academic year and who were internet users for “41 hours or more a week.”

Instrument & Procedure

Quantitative and qualitative data was collected using the “Internet Use Purposes Scale (IPUS)” developed by the researcher, and the qualitative data was collected using a semi-structured form. The Internet Use Purposes Scale (IPUS) comprises a total of 48 items in three sections entitled Personal Information, Internet Use Level, and Internet Use Purposes. The third section of the Internet Use Purposes Scale is a Likert-type scale. The scale comprises five sub-dimensions entitled Education (8 items), Entertainment (8 items), Psychological Needs (5 items), Socialization (4 items), Learning and General Culture (4 items), and 29 items in total. The structure validity of the scale was investigated using exploratory and confirmatory factor analysis. As a result of the exploratory factor analysis: The total variance explained by the structure was comprised of five major factors with the eigenvalue greater than
1 was found to be 53.72%. Load values in the five factors vary between .42 and .82, and the variance explained by sub-scales varies between 17.18% and 7.57%. The confirmatory factor analysis revealed at the second level DFA result that the five-dimensional structure represented an acceptable fit (RMSEA=.068, RMR = .13, NFI=.88, CFI=.92, IFI=.92, RFI=.86 AGFI=.81, GFI =.84). The Cronbach-Alfa reliability coefficients of the sub-dimensions in the scale vary between $\alpha = .70$ and $\alpha = .89$. The Cronbach-Alfa reliability coefficient of the entire scale is $\alpha = .86$. The qualitative data was collected in the study using a semi-structured form. Due to long distances between the schools in the sub-provinces of Istanbul, data was collected with the assistance of school psychological counselors who had been previously trained.

**Data Analysis**

Opinions regarding the purposes of internet use were analyzed using descriptive statistics, such as arithmetic mean, standard deviation and percent. When comparing the opinions regarding the purposes of internet use, a t-test was performed based on gender, and Kruskal Wallis test was used based on grade level. The significant difference was analyzed using a Mann Whitney U test based on binary combinations. In order to identify the causes and consequences of excessive internet use, the qualitative data collected by written responses through semi-structured forms was analyzed using a content analysis technique.

**Results**

This section contains the findings based on quantitative and qualitative data in line with the sub-objectives of the present study. First, findings regarding the purposes of internet use among adolescents using the internet excessively are presented followed by a comparison of the purposes of internet use according to gender and grade level. Last, the qualitative dimension of the study contains the findings on causes and consequences of excessive internet use among the adolescents.

The first sub-objective of the study is to identify the purposes of internet use among the adolescents with excessive internet use. The response to this question is first provided with the descriptive statistics over the total scores in the sub-dimensions of the students using the internet, and then the items with highest and lowest agreement rates were analyzed on an itemized basis. Table 1 provides the descriptive statistics regarding the purposes of internet use among the adolescents using the internet excessively.
Table 1

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>X</th>
<th>S</th>
<th>Order of Importance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Education</td>
<td>2.60</td>
<td>6.56</td>
<td>5</td>
</tr>
<tr>
<td>2. Entertainment</td>
<td>2.86</td>
<td>5.81</td>
<td>4</td>
</tr>
<tr>
<td>3. Psychological Needs</td>
<td>3.82</td>
<td>5.11</td>
<td>3</td>
</tr>
<tr>
<td>4. Socialization</td>
<td>4.16</td>
<td>3.19</td>
<td>1</td>
</tr>
<tr>
<td>5. Learning and General Culture</td>
<td>4.15</td>
<td>3.87</td>
<td>2</td>
</tr>
</tbody>
</table>

As seen in Table 1, the mean score regarding purposes of internet use among adolescents using the internet excessively is ($\bar{X} = 2.60$) in the Education dimension ($\bar{X} = 2.86$ in the Entertainment dimension, ($\bar{X} = 3.82$ in the Psychological Needs dimension, ($\bar{X} = 4.16$ in the Socialization dimension and ($\bar{X} = 4.15$ in the Learning and General Culture Dimension. Adolescents using the internet excessively use it “most of the time” to satisfy their “Socialization”, “Learning and General Culture,” and “Psychological needs,” and “some of the time” for “Education” and “Entertainment.” According to the order of importance, the adolescents use internet for “Socialization” the most and for “Education” the least.

The first six items with the highest agreement rate in all sub-dimensions are “to talk with friends” ($\bar{X} = 4.42$), “to watch video sharing sites (you tube, etc.)” ($\bar{X} = 4.26$), “to chat (on social networks) ($\bar{X} = 4.24$), “to kill time” ($\bar{X} = 4.05$), “to relax” ($\bar{X} = 3.72$) and “to socialize” ($\bar{X} = 3.67$). The first six items with the lowest agreement are “to gamble” ($\bar{X} = 2.02$), “to prepare for a new class topic” ($\bar{X} = 2.09$), “to watch video lectures” ($\bar{X} = 2.36$), “to make up classes” ($\bar{X} = 2.41$), “to study for classes”($\bar{X} = 2.47$) and “to do exercises for classes” ($\bar{X} = 2.48$).

According to these findings, adolescents who excessively the use internet use it “completely” to talk with friends, watch videos, chat (on social networks) and kill time; “to a considerable degree” to relax and socialize, and “very rarely” to gamble, study for classes, and do exercises for classes. Most of the items with the highest agreement are, on item basis, in “socialization” and “psychological needs” dimensions, the most of the items with the lowest agreement are in the “education” dimension.

The second sub-objective of the study is to investigate if the purposes of internet use among the adolescents who use the internet excessively differ based on gender and grade level. Below, Table 2 contains the T-test results in relation to gender are presented for independent samples regarding comparison of the purposes of internet use among the adolescents who use the internet excessively.
Table 2

Comparison of the Purposes of Internet Use among the Adolescents in Relation to Gender
(T-test results for independent samples)

<table>
<thead>
<tr>
<th>Sub-dimensions</th>
<th>Gender</th>
<th>N</th>
<th>X</th>
<th>S</th>
<th>sd</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Female</td>
<td>30</td>
<td></td>
<td>19.68</td>
<td>5.92</td>
<td>89</td>
<td>1.20</td>
<td>.230</td>
</tr>
<tr>
<td>2. Male</td>
<td>61</td>
<td></td>
<td>21.44</td>
<td>6.82</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Entertainment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Female</td>
<td>30</td>
<td></td>
<td>20.63</td>
<td>5.54</td>
<td>89</td>
<td>2.69</td>
<td>.008</td>
</tr>
<tr>
<td>2. Male</td>
<td>61</td>
<td></td>
<td>24.02</td>
<td>5.66</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psychological Needs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Female</td>
<td>30</td>
<td></td>
<td>15.63</td>
<td>6.00</td>
<td>45.893</td>
<td>1.53</td>
<td>.131</td>
</tr>
<tr>
<td>2. Male</td>
<td>61</td>
<td></td>
<td>17.54</td>
<td>4.54</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Socialization</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Female</td>
<td>30</td>
<td></td>
<td>16.24</td>
<td>3.55</td>
<td>89</td>
<td>.78</td>
<td>.435</td>
</tr>
<tr>
<td>2. Male</td>
<td>61</td>
<td></td>
<td>16.80</td>
<td>3.01</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Learning and General Culture</td>
<td></td>
<td></td>
<td>12.46</td>
<td>4.38</td>
<td>45.604</td>
<td>2.92</td>
<td>.005</td>
</tr>
<tr>
<td>2. Male</td>
<td>61</td>
<td></td>
<td>15.11</td>
<td>3.29</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

According to the T-test results for independent samples presented in Table 2, there is a significant difference between the opinions of the students who use internet excessively in the Entertainment [$t(89) = 2.69; p<.01$] and Learning and General Culture [$t(45.604) = 2.92; p<.01$] sub-dimensions. When the group means are examined, the mean of the males ($X = 24.02$) is higher than that of the females ($X = 20.63$) in the Entertainment sub-dimension, and the mean of the males ($X = 15.11$) is again higher than that of the females ($X = 12.46$) in the Learning and General Culture sub-dimension. There is no significant difference between the opinions of the students who use the internet excessively in the Education [$t (89) = 1.20; p>.01$], Psychological Needs [$t (45.893) = 1.53; p>.01$] and Socialization [$t (89) = .78; p>.01$] sub-dimensions. Accordingly, gender is a factor that affects the excessive internet use levels among adolescents for purposes of Entertainment and Learning and General Culture, and males who use internet excessively use internet significantly for purposes of Entertainment and Learning and General Culture in comparison to females.

Below, Table 3 contains the results of the Kruskal Wallis H Test in comparison of the purposes of internet use among adolescents who use internet excessively in relation to their grade level.
### Table 3

**Comparison of the Purposes of Internet Use among Adolescents in Relation to Grade Level (Kruskal Wallis H Test)**

<table>
<thead>
<tr>
<th>Sub-dimensions</th>
<th>Grade Level</th>
<th>N</th>
<th>Mean</th>
<th>sd</th>
<th>$\chi^2$</th>
<th>p</th>
<th>Significant Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. 9 grade</td>
<td>14</td>
<td>42.32</td>
<td>3</td>
<td>1.215</td>
<td>.729</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. 10 grade</td>
<td>24</td>
<td>49.04</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. 11 grade</td>
<td>27</td>
<td>42.81</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. 12 grade</td>
<td>26</td>
<td>48.48</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Entertainment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. 9 grade</td>
<td>14</td>
<td>43.75</td>
<td>3</td>
<td>7.482</td>
<td>.058</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. 10 grade</td>
<td>24</td>
<td>43.85</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. 11 grade</td>
<td>27</td>
<td>38.15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>4. 12 grade</td>
<td>26</td>
<td>57.35</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Psychological Needs</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. 9 grade</td>
<td>14</td>
<td>60.29</td>
<td>3</td>
<td>9.483</td>
<td>.024</td>
<td>1--4, 3--4</td>
<td></td>
</tr>
<tr>
<td>2. 10 grade</td>
<td>24</td>
<td>46.77</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. 11 grade</td>
<td>27</td>
<td>34.72</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. 12 grade</td>
<td>26</td>
<td>49.31</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Socialization</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. 9 grade</td>
<td>14</td>
<td>51.18</td>
<td>3</td>
<td>3.884</td>
<td>.274</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. 10 grade</td>
<td>24</td>
<td>50.69</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. 11 grade</td>
<td>27</td>
<td>38.02</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. 12 grade</td>
<td>26</td>
<td>47.17</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Learning and General Culture</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. 9 grade</td>
<td>14</td>
<td>39.29</td>
<td>3</td>
<td>1.753</td>
<td>.625</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. 10 grade</td>
<td>24</td>
<td>48.02</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. 11 grade</td>
<td>27</td>
<td>44.02</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. 12 grade</td>
<td>26</td>
<td>49.81</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

According to the results of this analysis, adolescents’ opinions on internet use significantly vary in the “psychological needs” sub-dimension in relation to their grade level [$\chi^2$(sd=3, n=91) =9.48, p<0.05]. According to the mean rank of the groups, 9 grade students use the internet for the purposes in the psychological needs sub-dimension the most. According to the results of a Mann Whitney U test performed on the binary combinations of the groups to determine the source of the significant difference observed between the groups, there are significant differences between 9 grade and 12 grade students (U=9.48, p<0.5) and 11 grade and 12 grade students.
(U=9.48., p<0.5) in terms of the purposes of internet use in the psychological needs dimension. Considering their mean ranks, for purposes of psychological needs, 9 grade students use internet more than 12 grade students, and 12 grade students use more than 11 grade students. It is understood that 9 and 12 grade students who use internet excessively use it more for purposes of psychological needs and that their intended internet use is influenced by their psychological needs.

Adolescents’ opinions regarding causes of their excessive internet use, which is the third sub-objective of the study, were analyzed with content analysis. Descriptive statements for each main category are also provided. Findings regarding causes of their excessive internet use are provided in Table 4.

Table 4

<table>
<thead>
<tr>
<th>Causes of Adolescents’ Excessive Internet Use</th>
<th>Main Category</th>
<th>Subcategories</th>
<th>(f)</th>
<th>Quotations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning and Development Needs</td>
<td>Learning and Self Improvement</td>
<td>28</td>
<td>&quot;I get all the information I want, I find whatever I want.&quot; (male, 16 years old)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Following up the agenda</td>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Learning new things</td>
<td>12</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Keeping abreast of technology and science</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Doing research</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Learning to inform others</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reading e-newspapers, books</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Learning and Development Needs</td>
<td>Following cultural events</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>87(34%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Socialization Need</td>
<td>Talking with friends</td>
<td>27</td>
<td>&quot;If I had become social at the time, the only media where I could find people with the same mindset as I was on the internet. Even one person who had the same mindset would have been enough&quot; (male, 16 years old)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chatting on social networks (Facebook, Twitter)</td>
<td>18</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Browsing forums and blogs</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Staying informed about friends</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Searching friends</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sharing different ideas</td>
<td>2</td>
<td>&quot;Since my circle of friends is not good, I use the internet more.&quot; (male, 16 years old)</td>
<td></td>
</tr>
<tr>
<td>2. Socialization Need</td>
<td>Failure to become social in the past</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>61(24%)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 4. Continued

<table>
<thead>
<tr>
<th>Psychological reasons</th>
<th>Frequency</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Killing time out of boredom</td>
<td>33</td>
<td>&quot;Actually, there is no specific reason: I spend time on the internet because there is nothing else to do. I don't like hanging out. I am good friends with my computer and phone.” (male, 16 years old)</td>
</tr>
<tr>
<td>Forgetting/getting away from problems</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Finding nothing else to do</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Relaxing, getting rid of stress</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Loneliness</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Feeling a sense of freedom</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>53(21%)</td>
<td></td>
</tr>
</tbody>
</table>

4. Seeking Entertainment

<table>
<thead>
<tr>
<th>Activity</th>
<th>Frequency</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Watching movies, shows, videos</td>
<td>19</td>
<td>“I get on internet to learn what others do, where they go, and with whom.” (female, 16 years old)</td>
</tr>
<tr>
<td>Playing games</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>Entertainment</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Shopping Easily</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>52(21%)</td>
<td></td>
</tr>
</tbody>
</table>

As seen in Table 4, causes of excessive internet use are grouped under Learning and Development needs, Socialization needs, Psychological reasons and Seeking Entertainment. The highest frequency is in the Learning and Development needs and the Socialization categories. The lowest frequency is in the Seeking Entertainment main category. The sub-categories with the highest frequency are Killing time out of boredom (f=33), Learning and self-improvement (f=28), Talking with friends (f=27), and Following up the agenda (f=20).

Findings regarding the consequences of excessive internet use, the fourth sub-objective of the study, are provided in Table 5.
Table 5  
Consequences of Adolescents’ Excessive Internet Use

<table>
<thead>
<tr>
<th>Main Category</th>
<th>Subcategories</th>
<th>(f)</th>
<th>Quotations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Negative Opinions</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unsociability</td>
<td>44</td>
<td>“You become unsociable while trying to be sociable” (male, 17 years old)</td>
</tr>
<tr>
<td></td>
<td>Distancing/drifting away from family</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Being exposed to reaction from the</td>
<td>21</td>
<td>“I don’t have any idea as to how to spend time or I have never tried” (male, 18 years old)</td>
</tr>
<tr>
<td></td>
<td>environment and discomfort</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Conflicting with the family</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wasting time/leading a life in vain</td>
<td>7</td>
<td>“It may be unsociable, but it may prove useful in the future. It distances you from the outside environment and you get to live a cleaner life. I am aware that this is very harmful to me and people around me.” (male, 16 years old)</td>
</tr>
<tr>
<td></td>
<td>Delaying/not fulfilling responsibilities</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Positive Opinions</strong></td>
<td>26</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Socialization/getting to know new</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td></td>
<td>people</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Making new friends</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Staying in contact with friends</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>148</td>
<td>(51%)</td>
</tr>
</tbody>
</table>

|               | **Physical health problems**         |     |                                                                                                                                                                                                           |
|               | Eye health deterioration             | 21  | “I constantly have a headache; my eye health has also deteriorated.” (male, 16 years old)                                                                                                               |
|               | Back and leg pain                    | 11  |                                                                                                                                                                                                           |
|               | Health problems                      | 9   |                                                                                                                                                                                                           |
|               | Headache                              | 5   |                                                                                                                                                                                                           |
|               | Fatigue                               | 2   |                                                                                                                                                                                                           |
|               | Intestinal disorder                  | 1   |                                                                                                                                                                                                           |
|               | Insomnia                              | 1   |                                                                                                                                                                                                           |
|               | Total                                 | 50  | (18%)                                                                                                                                                                                                     |

<p>|               | <strong>Negative Opinions</strong>                | 28  |                                                                                                                                                                                                           |
|               | Neglecting classes/homework          | 23  | “Its consequence for me is that I have less interest in school; if this education system changed and also if had more interest in school, I could reduce internet use.” (male, 16 years old) |
|               | Not studying classes                 | 5   |                                                                                                                                                                                                           |
|               | <strong>Positive Opinions</strong>                | 17  |                                                                                                                                                                                                           |
|               | Learning a foreign language          | 6   |                                                                                                                                                                                                           |
|               | Improving foreign language skills    | 6   |                                                                                                                                                                                                           |
|               | Doing homework, studying             | 5   |                                                                                                                                                                                                           |
|               | Total                                 | 45  | (16%)                                                                                                                                                                                                     |</p>
<table>
<thead>
<tr>
<th>Psychological Problems</th>
<th>(Risk of) turning into an addiction</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Stupefying effect/</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>Breaking away from life</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lack of communication</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Loss of self-control</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Bad temper</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Feeling bad when not on the internet</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>35 (12%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mental Problems</th>
<th>Slowdown in mental activities</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Difficulty in comprehension-reaction</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Difficulty in expression and speech</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Amnesia</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Inability to focus on someone</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>8 (3%)</td>
</tr>
</tbody>
</table>

When Table 5 is examined, the consequences of excessive internet use gather around the main categories of Social, Physical health, Psychological and Mental consequences. The main categories with the highest frequency are Social Consequences and Physical health problems. The lowest frequency is in the Mental problems main category. The sub-categories with the highest frequency in these main categories are Unsociability (f=44), Distancing-drifting away from family (f=30), Eye health deterioration (f=21), Being exposed to reaction from the environment (f=21), and Neglecting classes and homework (f=23).

Discussion and Conclusion

The purposes of excessive internet use are provided in five main dimensions in Figure 1. The internet is used most for socialization and then for learning and general culture. The study findings are parallel with the literature. Other studies have found that internet users use the internet to kill time, to talk with friends, and for psychological needs and socialization (Ling et al., 2011; Watson, 2005). It may also be said that components corresponding to psychological needs play a role more in the relationship established by the adolescents that use internet excessively and that they tend to manage their relationships on internet rather than in real life and feel the need to socialize.
Figure 1. Purposes of excessive internet use

Using the internet for “educational” purposes is the lowest ranked dimension of the list and is “infrequent” among adolescents that use the internet excessively. Another study has found that there is a significant relationship between excessive internet browsing and academic failure and that internet use among successful students is quite limited (Hazelhurst, Johnson & Sanders, 2011). On the other hand, use of the internet for learning purposes ranks second in this study. This reveals that, among adolescents who use internet excessively, internet use for “educational” purposes ranks last (infrequent) and its use for “learning” purposes ranks second and is frequent “to a considerable degree.” This finding points to the fact that the meaning of “knowledge” and “education” must be investigated by another study in the context of excessive users. The findings for purposes of excessive internet use suggest two conclusions. The first is that adolescents who use the internet excessively tend to socialize in virtual life instead of real life. The second is that the internet is used as a means to satisfy the need to learn. In this respect, educational institutions must re-visit the function and content of knowledge and education again.

Gender is a variable that affects internet-use purposes. Males use the internet more than females for purposes of “Entertainment and Learning and General Culture. The study by Aydn (2010) has found that male students spend time on the computer more for Entertainment needs in comparison to female students. Another study has found that internet use for entertainment purposes is higher in males (56.4%) than females (% 43.6) (Kurulgan & Argan, 2007). In this context, the results are parallel with the literature in terms of the gender variable. Social gender roles and raising children based on gender discrimination impel men to demonstrate more disadvantageous behavior in self-expression in comparison to females.
This study has revealed that grade level affects purposes of internet use based on psychological needs, and that 9 grade students and 12 grade students use the internet more for purposes based on psychological needs. According to Smahel et al. (2012), excessive internet use is best described by psychological approaches. Such approaches suggest that individuals use the internet excessively to compensate for social and psychological challenges and shortcomings that damage their well-being. Students start 9 grade after a challenging exam process, and adolescents in 12 grade start to feel concerned about the future. In this respect, the internet is a psychological relief platform for excessive users. The fact that the subcategory with the highest frequency is "to kill time out of boredom" suggests inadequacy of social, artistic and sports activities for adolescents as well as lack of social skills in adolescents.

For purposes of comparison, the main categories for causes and consequences of excessive internet use are provided respectively in Figure 2 and Figure 3.

As seen in Figure 2, causes of excessive internet use are respectively Learning and Development needs, Socialization needs, Psychological reasons and Seeking Entertainment. In the study, while “socialization and learning” are prevalent in terms of purposes, the “psychological needs” dimension is prevalent according to the grade level variable. When the causes are examined, learning and general culture need is the first cause of excessive internet use. A study conducted by Flipovic (2013) has revealed that the most important factor that drives frequent internet users to use internet is learning. However, in this study, 75% of the participants have low academic success. Şenyuva & Kaya (2013) has also found that students see “internet as information source.. In this context, adolescents seem to learn on the internet instead of at school.

![Figure 2. Causes of excessive internet use](image-url)
Figure 3. Consequences of excessive internet use

As seen in Figure 3, excessive internet use leads respectively to Social Consequences, Physical health problems, Academic consequences, Psychological problems, and Mental Problems in adolescents. These consequences indicate that excessive internet use has a multifaceted impact on the development of adolescents and that excessive users need psychosocial support in the delicate adolescent period. According to the findings in the literature, excessive internet use leads to loneliness, depression, drifting away from family and friends, weakening of ties with relatives and society (Bargh & McKenna, 2004), and neglecting roles and duties (Brey, 2006). Regarding psychological needs, Çelik, Atak & Ergüzen (2012) also found that adolescents’ emotional instability was the leading predictor of being cyberbullied. Excessive internet use has adverse effects on mental performance and the working memory (Xiong, 2011) and leads to sleep disorders, weight loss, headaches, back pain, loss of concentration, focusing difficulties, and loss of productivity/performance (Ling et al., 2011).

In view of the above purposes, causes and consequences in adolescents who use the internet excessively, the need to socialize and learn are emphasized in terms of purposes and causes; psychological needs are prevalent in 9 and 12 grades; excessive use causes multifaceted adverse effects on adolescents, including social, physical, academic, psychological and mental problems. In this context, measures must be taken to meet the students’ learning and development needs at schools and in real life; programs must be in place to develop their social skills; artistic, sports and
cultural activities must be increased. These necessities are as crucial as improving the quality of education. This issue mandates that measures be taken at the macro level in view of its future risks. The characteristics, psychosocial needs, and the conception of knowledge, education and socialization of the generation Z that will start high school now must be examined by the educational experts and the academia.

References


Ergenlerin Aşırı İnternet Kullanım Amaçları, Nedenleri ve Sonuçları

Atıf:

Özet

Problem Durumu


Aşırı internet kullanımı sadece süreyle ilgili değildir. Amac, davranışların ardındaki niyet (Ling ve diğerleri, 2011), kişisel özellikler (Weinstein ve Lejoyeux, 2010), sosyal
Kaygı, ailevi faktörler, kişinin hangi tip kullanma eğilimli olduğu internetin zararlı mı zararlı mı olacağı noktasında önemli faktördür. Bu bağlamda interneti aşırı kullanan ergenlerin sadece kullanım süreleri değil, internet kullanım nedenleri, amaçları ve aşırı kullanımın sonuçlarının neler olduğu önem taşımaktadır.

**Araştırmannın Amacı**

Aşırı internet kullanan ergenlerin; interneti kullanma amaçlarının, nedenlerinin ve sonuçlarının neler olduğunu saptanmış ile internet kullanım amaçlarının cinsiyet ve sınıf düzeyi değişkenlerine göre incelenmesidir.

**Araştırmannın Yöntemi**


**Araştırmannın Bulguları**

Aşırı internet kullanan ergenlerin internet kullanım amaçları sırasıyla Sosyalleşme (X̄=4.16), Bilgilenme ve Genel Kültür (X̄=4.15), Psikolojik ihtiyaçlar (X̄=3.82), Eğlence (X̄=2.86) ve Eğitimdir (X̄=2.60). Eğlence t(89) = 2.69; p<.01 ile Bilgilenme ve genel kültür t(45,604) = 2.92; p<.01 alt boyutlarında aşırı internet kullanıcısı öğrencilerin görüşleri arasında cinsiyete göre anlamlı fark vardır. “Eğlence” ile “Bilgilenme ve Genel kültür” alt boyutlarında erkeklerin ortalaması kızlardan yüksektir [Eğlence E(X=x=24.02)-K(x=20.63)],[Bilgilenme ve genel kültür E(x=15.11),K(x=12.46)].

“Psikolojik ihtiyaçlar” alt boyutunda Aşırı internet kullanan ergenlerin internet kullanım amaçları konusundaki görüşlerinde sınıf düzeyine göre anlamlı fark vardır [x̂2 (sd=3, n=91) = 9.48 , p< 0.05]. Anlamlı farkın kaynağına bulmak amacıyla uygulanan Mann Whitney U testi sonuçlarına göre psikolojik ihtiyaçlar boyutundaki amaçlarla internet kullanımında 9. sınıfın, sınıf ile 12. sınıf öğrencisi ile (U=9.48, p<0.5.), 11. sınıfın ile 12. sınıf öğrencisi arasında(U=9.48., p<0.5.) anlamlı fark vardır. Ergenlerin aşırı internet kullanım nedenleri sırasıyla Bilgilenme ve Gelişim İhtiyacı(f=148;51), Sosyalleşme İhtiyacı(f=61;24), Psikolojik nedenler(f=53;21) ve Eğlence arayışı (f=52;21) ana kategorilerinde toplanmaktadır. Ergenlerde aşırı internet kullanım sonuçları ise Sosyal sonuçlar(f=148;51), Fiziksel sağlık
Filiz Akar

Araştırmanın Sonuçları ve Önerileri


Anahtar Kelimeler: İnternet bağımlılığı, ergen, okul psikolojisi, rehberlik ve psikolojik danışma
Preschool Teacher Candidates’ Research Qualifications and Anxiety Level towards Research

Gamze YAVUZ KONOKMAN*
Tuğba YELKEN**
Gürol YOKUŞ***

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Abstract

Problem Statement
Acquisition of research qualifications are one of the most demanded learning outcomes of education faculties. There is great emphasis on building a research identity by developing the skills of students in the department of education faculties. However, very few surveys analyze the current situation of university students in the department of Early Childhood Education concerning research qualifications and anxiety level towards research.

Purpose of Study
This paper attempts to reveal the relationship between research qualifications of preschool teacher candidates and their anxiety towards research and whether or not the research qualifications of preschool teacher candidates and their anxiety level differ according to numerous variables.

Methods
A correlational survey model is used. One hundred and eighty teacher candidates were reached during their education as freshmen, sophomores, juniors, and seniors in the department of early childhood education at Mersin University. “The Anxiety towards Research Scale” and “The Research Qualifications Scale” were implemented. Descriptive statistics, Pearson Correlation Coefficient and difference of means tests were implemented in order to determine findings.

Findings and Results
This study indicates preschool teacher candidates possess high research qualifications and low levels of anxiety towards research. The results show gender makes no significant difference in their research qualifications and their level of anxiety towards research. When analyzed at class level, preschool teacher candidates in the 4th year of study...
possessed the highest research qualifications and fairly low research anxiety. In terms of research anxiety, undergraduates in the 3rd year of study possessed the highest level of anxiety towards research, and 2nd year undergraduates possessed the lowest level of anxiety. Also, individuals who had research experience were aware of the scientific research process.

Conclusions and Recommendations

It is suggested that instructors of these courses should identify the current knowledge of undergraduates about the class topic and should attempt to correct student misconceptions about research. The scientific research methods course is suggested to be taken in the first year of the early childhood education program. Also, for research experience, undergraduates should be given more opportunities to participate in research environments, spend more time there, have easy access to necessary materials, and be given guidance. Also, undergraduates should be supplied with previous research project samples so they can examine them in detail, which will probably decrease their anxiety and apprehension levels. Lastly, it is a good idea to create a web portal about their own authentic research projects.

Keywords: Research qualifications, anxiety toward research

Introduction

In our global age in which knowledge is accepted internationally as the greatest power, the basic goal of education is to create a knowledge society comprised of individuals who know how to get, select, and reproduce knowledge. Büyüköztürk (1999) expresses that the main purpose of an education system is to raise individuals who produce knowledge, share these productions, and possess research qualifications, scientific attitudes, and behaviors. Universities who serve the function of contributing to social and scientific developments by conducting research play a key role in educating individuals with a researcher identity. However, research is viewed by undergraduates as one of the most challenging tasks at universities, and students in many disciplines complain about having difficulty in research courses (Murtonen, 2005). Quarton (2003) argues that “because few universities require an assessment of information literacy as a condition of graduation, many students move from course to course with only a marginal understanding about how to use research tools and how to evaluate resources”. There is a social perception among societies that it is the responsibility of universities to supplement individual research qualifications. However, acquisition of research qualifications should not be limited to and put on the shoulders of higher education institutions; this should also be expanded to primary and secondary education institutions, at least for basic skills. Karasar (1974) puts emphasis on this and notes that research education is not a specialization education concerning universities; in contrast, it is a general culture education that should be practiced by educational institutions at all levels. According to Karasar, it is not sufficient for only scientists to be the only ones in society who can conduct scientific research; policy makers should make sure that even everyday citizens possess research culture at a certain level.
When we have a look at literature, it is easily noticed that research has been defined in many ways. The Turkish National Education Ministry basically defined research as a “learning and knowledge gathering process which includes asking questions, investigation, evaluation, interpretation and decision making” (MoNE, 2013). According to Kara (2013), research is a process of systematically collecting data and making an analysis. According to Rooney (2011), research is organized knowledge that chooses some part of an event as a research topic, selects the population, and seeks to come up with laws depending on experimental methods and reality. Toy and Tosunoglu (2007) state that research studies which are not reliable and valid lead to a faulty and unfavorable development of society and science by emphasizing that research must be correct, reliable, and foolproof. Therefore, there is a great need to supply research validity and reliability in order for the proper development of society and science, and individuals should be educated with consideration of these concerns. Reliable and accurate studies are closely related to whether or not individuals possess the necessary research qualifications. Quarton (2003) draws a framework for a mastery of research skills and presents some key points that foster the acquisition of research skills in the university classroom. She lists these points as “focusing the topic, teaching strategy (advice for course practitioners), planning an effective search, and searching the literature”. Because the education system aims to raise individuals with scientific attitudes and behaviors, it is fundamental that teacher candidates graduate possessing the necessary research qualifications and positive attitudes towards research. However, most of the time undergraduate teacher candidates struggle more in research than in any other course. Papanastasiou and Zembylas (2006) explain this as “being confronted with new and challenging material”. They assert that “undergraduate students suddenly find themselves being introduced to completely new concepts that are often accompanied by mathematically-based ideas, and are confronted with new and challenging material likely to trigger a number of responses from these students, including stress, uncertainty, and anxiety”.

Research qualifications have been listed by Büyüköztürk (1999) as being capable of: “developing a research project; limiting a topic and defining a research problem; reviewing literature in order to reach studies and periodicals about a specific subject; stating the research problem as a hypothesis, question statement, or sentence; collecting raw data via convenient tools (questionnaire, observation, meeting, document scanning); evaluating the collected data properly (analyzing); and preparing a scientific report by considering its rules and principles”. Bağcı- Kılıç (2003) defines the steps of how to acquire research qualifications under the following headings:

- Scientific method (hypothesizing, making observations, making deductions, generalization)
- Experimental design (experimental control, materials, and process)
- Scientific measurement (validity, duplication, experimental error, coherency, scale)
- Using scientific means and conducting ritual experimental operations
• Collecting, organizing, and representing data (units, tables, figures, and graphics)
• Defining and evaluating the data

Teachers who carry the vital responsibility to create a knowledge society should at first themselves possess research qualifications. Considering that the purpose of an education system is to raise research individuals who possess scientific attitudes and behaviors, it is of capital importance that teacher candidates graduate from universities having research qualifications and positive affective attitudes towards research. Auger and Wideman (2000) point to this issue by stating that it must be a priority for policy-makers to supply teacher candidates with these skills. In the literature there are studies that look for the obstacles that hinder developing a positive attitude towards research. Büyükoztürk (1999) emphasizes that a negative attitude towards research possibly results from the fear and anxiety felt during the research process. Anxiety is defined as the possibility of danger from the inner or outer world, or any feeling perceived and interpreted as dangerous by the individual (Ari, Savaş and Konca, 2010). Anxiety, whose stimulator mostly remains ambiguous, is accepted as a really complex feeling. Anxiety has been defined by Çokluk-Bökeoğlu and Yılmaz (2005) as “not researching when not being forced, to feel bored when one has to do research, to feel bothered when one thinks about doing research, not feeling self-confident about doing, research and behaviors like these”. Additionally, anxiety could demonstrate behavioral symptoms that differ from person to person. Anxiety symptoms can roughly be listed as: “trembling, sweating, mind confusion, fainting, rapid heart palpitations, difficulty breathing, continuous exhaustion, avoidance behavior, and nervousness” (Australian Psychological Society, n.d.). Onwuegbuzie and Wilson (2003) analyze the three factors that contribute to research anxiety: situational, dispositional, and environmental. Situational factors include prior knowledge and experience. Dispositional factors are those like self-esteem in engaging in math, research statistics, and the perceived usefulness of these topics. Environmental factors are comprised of learning style, age, gender, and ethnicity. There may be other additional factors leading to research anxiety. For instance, Onwuegbuzie (2004) came up with the academic procrastination factor related to research anxiety after studying 135 graduate students from education faculty. Nearly every other person reported a procrastination factor while reading assignments, studying for tests, and writing papers. Onwuegbuzie (2004) claimed that procrastination and research anxiety appeared to be significantly related. Williams (2010) conducted a study on statistics anxiety that indicated instructor immediacy is significantly related to six factors of statistics anxiety, with immediacy explaining between 6% and 20% of the variance in student anxiety levels. This is an important finding that shows the necessity of instructors using immediacy behaviors in order to decrease anxiety.

According to Stenhouse (1985), teacher candidates should be responsible for doing research rather than only teaching and instructing. In the literature review, it is observed that teachers conduct research activities for different purposes. These purposes vary, such as self-development, contributing to the, instruction process (Elliot, 1991) or producing knowledge (Kemmis and McTaggart, 1992). However,
Artvinli (2010) addresses the point that teachers are viewed as the object of research: they only play the role of participant in research when instead they should also execute some research. The current situation in Turkey reveals that teachers only participate in the step of data collecting (Küçük, 2002). However, teachers are expected to design and conduct small-scale research in their teaching environment in addition to participating data collection. When it comes to following periodicals and academic publishing in educational sciences or in other areas, one study conducted by TED (2009) reveals that only 12 percent of teachers follow research about their profession. Buluş, Kırıkkaya, Bozkurt, and Öztürk (2012) found that nearly half of science and technology teachers are aware of what research is being conducted in their schools, less than half care about research results, and most do not learn the research results. Ekiz (2006) stated that most primary school teachers are willing to conduct research in order to help students learn more easily and develop their own instructional strategies and methods; however, lack of time and limited facilities create barriers to teachers who are willing to take place as an executive in research. Unfortunately, this study also reveals that most teachers judge that studies conducted by academics are not really related to the real world. Therefore, it is possible to conclude that teachers’ negative views and attitudes towards research hinder the development of research qualifications of teachers and their students, too. Saracoğlu, Varol, and Ercan (2005) relate the possibility of conducting research activities to the research qualifications and positive attitudes of individuals and institutions. In this sense, it is strongly emphasized that teachers (and teacher candidates) are expected to have the willingness and skills to conduct research, use the information and communication technologies during research, analyze the data, and share analysis results with administrators and other practitioners (MEB, 2008). The number of publications about research methods has recently increased in order to develop a sense of research awareness. Also, courses that aim to increase research qualifications take place in more educational programs. In this regard, research education has become a matter of great importance in both undergraduate and post-graduate levels. Saracoğlu et al. (2005) emphasized that the research knowledge and skills supplied to individuals fail to be adequate for conducting research. Determining whether or not a research matter is within an individual’s interest, their morals, and whether or not they view this process as a threat is more crucial to the process. This study aims to analyze the research qualifications of preschool teacher candidates and their anxiety level towards research depending upon certain variables (gender, class level, scientific research methods course, and scientific research experience), as well as see whether or not a relation between research qualifications of preschool teachers and their anxiety level towards research exists. In relation to the aim of this study, we will attempt to find answers to the following research questions:

1. What are the research qualifications of preschool teacher candidates?
   - Do the research qualifications of preschool teacher candidates show a significant difference according to gender?
   - Do the research qualifications of preschool teacher candidates show a significant difference according to class level?
• Do the research qualifications of preschool teacher candidates show a significant difference according to whether or not they took a scientific research methods course?
• Do the research qualifications of preschool teachers show a significant difference according to research experience?

2. What is the anxiety level of preschool teacher candidates towards research?
• Does the anxiety level of preschool teacher candidates towards research show a significant difference according to gender?
• Does the anxiety level of preschool teacher candidates towards research show a significant difference according to class level?
• Does the anxiety level of preschool teacher candidates towards research show a significant difference according to whether or not they took a scientific research methods course?
• Does the anxiety level of preschool teacher candidates towards research show a significant difference according to research experience?

3. What is the relationship between research qualifications of preschool teacher candidates and their anxiety level towards research?

Method

Research Design
This study aims to determine whether or not the research qualifications of preschool teacher candidates and their anxiety level towards research differ according to different variables, as well as the relationship between the research qualifications of preschool teacher candidates and their anxiety level towards research. In this study, a correlational survey model (a descriptive research method) is used.

Research Population and Sample
The population of this study includes preschool teacher candidates who continued their education in the department of early childhood education at Mersin University during the 2012-2013 education year. Because the population was finite and easily accessible, population sampling was not used and the study aimed to reach the whole population. The study was conducted with all preschool teacher candidates who were present during application of study at the facility. One hundred and eighty-seven teacher candidates who continued their education as freshmen, sophomores, juniors, and seniors were reached in the department of early childhood education at Mersin University; after an extreme value analysis the study was carried out with 180 teacher candidates. For detailed information about the study group, please refer to Table 1.
Table 1.
The Frequency and Percentage Table of Preschool Teacher Candidates According to Their Gender, Class Level, Scientific Research Methods Course, and Scientific Research Experience.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>159</td>
<td>88,3</td>
</tr>
<tr>
<td>Male</td>
<td>21</td>
<td>11,7</td>
</tr>
<tr>
<td><strong>Class Level</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Freshman (1.year)</td>
<td>56</td>
<td>31,1</td>
</tr>
<tr>
<td>Sophomore (2.year)</td>
<td>48</td>
<td>26,7</td>
</tr>
<tr>
<td>Junior (3.year)</td>
<td>33</td>
<td>18,3</td>
</tr>
<tr>
<td>Senior (4.year)</td>
<td>43</td>
<td>23,9</td>
</tr>
<tr>
<td><strong>Scientific Research</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>67</td>
<td>37,2</td>
</tr>
<tr>
<td>No</td>
<td>113</td>
<td>62,8</td>
</tr>
<tr>
<td><strong>Scientific Research Experience</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>58</td>
<td>32,2</td>
</tr>
<tr>
<td>No</td>
<td>122</td>
<td>67,8</td>
</tr>
</tbody>
</table>

Data Collection Instruments

In this study, the “anxiety towards research scale” and the “research qualifications scale” that were developed by Büyüköztürk (1997; 1999) were implemented. According to the validity and reliability results of the “anxiety towards research scale”, the loading points of all items are above .55 and one factor accounts for 42 percent of total variance. Also, the reliability coefficient of the whole scale is .87; therefore, when it comes to implementation of a scale in order to determine the level of anxiety towards research, it can be assumed that the analysis will yield reliable results. The construct validity of the “research qualifications scale” was tested with principal components analysis as a factor analysis technique and the scale was found to have a single factor. This single factor accounts for 60 percent of total variance and the factor load points are between .66 and .84. The Cronbach Alpha internal consistency estimate of scale reliability is found to be .89. A validity and reliability analysis of the “anxiety towards research scale”, the study group consists of education faculty undergraduate students, while the “research qualifications scale” development study was conducted with teachers who work at primary schools. Data obtained about the validity and reliability studies of both scales show that these scales are valid and reliable instruments to determine the research qualifications of teacher candidates and their level of anxiety towards research. Additionally, because study groups in the development process of the scales include teacher and teacher candidates, it can be easily argued that these scales are proper for sample groups of the study.

Data Analysis

In order to determine the research qualifications of teacher candidates and their level of anxiety towards research, arithmetic mean and standard deviation value were examined. If the mean points obtained from scales of research qualifications of teacher candidates and their level of anxiety towards research are above the central point of scales, it is accepted that the research qualifications of teacher candidates are
high and anxiety levels are low. If the mean points obtained from scales of research qualifications of teacher candidates and their level of anxiety towards research are below the central point of scales, it is accepted that the research qualifications of teacher candidates have low research qualifications and high anxiety levels. The difference of means test was implemented in order to determine whether or not research qualifications of preschool teacher candidates and their level of anxiety towards research differ according to gender, class level, taking a scientific research methods course, and scientific research experience. For this reason, whether or not the dependent variable is distributed normally at the independent variable level is examined. It has been observed that for all variables examined, research qualifications points and anxiety towards research points are distributed normally. Depending on the results of the test of normality, the t-test for unrelated samples was used in order to determine whether or not the research qualifications of teacher candidates and their level of anxiety towards research differ according to gender, class level, taking a scientific research methods course, and scientific research experience. One-way variance analysis (ANOVA) was used to determine whether or not a difference exists depending on class level of teacher candidates. The Pearson Correlation Coefficient has been calculated in order to see the relationship between research qualifications of preschool teacher candidates and their level of anxiety towards research.

**Results**

Table 2 shows the arithmetic mean and standard deviation values that were used to determine the research qualifications of preschool teacher candidates and their level of anxiety towards research.

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Min.</th>
<th>Max.</th>
<th>X</th>
<th>SS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Qualifications</td>
<td>180</td>
<td>11</td>
<td>35</td>
<td>22.69</td>
<td>4.56</td>
</tr>
<tr>
<td>Research Anxiety</td>
<td>180</td>
<td>16</td>
<td>48</td>
<td>32.09</td>
<td>6.16</td>
</tr>
</tbody>
</table>

According to Table 2, preschool teacher candidates scored 11 at the lowest and 35 at the highest from the research qualifications scale. From the descriptive statistical results of the research qualifications scale, it is obvious that preschool teacher candidates possess the necessary research qualifications. Also, preschool teacher candidates scored 16 at the lowest and 48 at the highest from research anxiety scale.

The highest point one can get from the scale is 60 and the lowest point is 12. The mean of points teacher candidates got from the research anxiety scale is 32.9, and the standard deviation is 6.16. From the descriptive statistical results of research qualifications and research anxiety scale, it is obvious that preschool teacher candidates possess the necessary research qualifications and their level of anxiety towards research is low. Table 3 shows the results of a t-test for unrelated samples that were used to determine whether or not the research qualifications of preschool
teacher candidates and their level of anxiety towards research differ according to gender.

Table 3.
*The Results of a T-Test for Unrelated Samples That Was Used to Determine Whether or Not Research Qualifications of Preschool Teacher Candidates and Their Level of Anxiety towards Research Differ According to Gender.*

<table>
<thead>
<tr>
<th>Gender</th>
<th>Research Qualifications</th>
<th>n</th>
<th>X</th>
<th>SS</th>
<th>sd</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>159</td>
<td>22,85</td>
<td>4,65</td>
<td>178</td>
<td>1,288</td>
<td>.199</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>21</td>
<td>21,49</td>
<td>3,68</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gender</th>
<th>Research Anxiety</th>
<th>n</th>
<th>X</th>
<th>SS</th>
<th>sd</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>159</td>
<td>31,96</td>
<td>6,12</td>
<td>178</td>
<td>.792</td>
<td>.430</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>21</td>
<td>33,10</td>
<td>6,56</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

According to Table 3, gender makes no significant difference in the research qualifications of preschool teacher candidates and their level of anxiety towards research, t(178)=1,288 p>.05; t(178)=.792 p>.05. The findings show that gender is not a variable that makes a difference in the research qualifications of preschool teacher candidates and their level of anxiety towards research.

Table 4 shows the results of a t-test for unrelated samples that was used to determine whether or not the research qualifications of preschool teacher candidates and their level of anxiety towards research differ according to taking a scientific research methods course.

Table 4.
*The Results of a T-Test for Unrelated Samples that was Used to Determine Whether or Not The Research Qualifications of Preschool Teacher Candidates and Their Level of Anxiety Towards Research Differ According to Taking a Scientific Research Methods Course.*

<table>
<thead>
<tr>
<th>Research Qualifications</th>
<th>n</th>
<th>X</th>
<th>SS</th>
<th>sd</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>67</td>
<td>24,92</td>
<td>4,65</td>
<td>178</td>
<td>5,452</td>
<td>.00</td>
</tr>
<tr>
<td>No</td>
<td>113</td>
<td>21,36</td>
<td>3,96</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Research Anxiety</th>
<th>n</th>
<th>X</th>
<th>SS</th>
<th>sd</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>67</td>
<td>29,96</td>
<td>6,17</td>
<td>178</td>
<td>3,699</td>
<td>.00</td>
</tr>
<tr>
<td>No</td>
<td>113</td>
<td>33,36</td>
<td>5,82</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

According to Table 3, taking a scientific research methods course makes a significant difference in the research qualifications of preschool teacher candidates and their level of anxiety towards research, t(178)=5,452 p<.05; t(178)=3,699 p<.05. Comparing the preschool teacher candidates who took a scientific research methods course to the ones who did not, the ones who did possess higher research qualifications and lower research anxiety.

Table 5 shows the results of a t-test for unrelated samples that was used to determine whether or not the research qualifications of preschool teacher candidates and their level of anxiety towards research differ according to scientific research experience.
Table 5.
The Results of a T-Test for Unrelated Samples That Was Used to Determine Whether or Not the Research Qualifications of Preschool Teacher Candidates and Their Level of Anxiety towards Research Differ According to Scientific Research Experience.

<table>
<thead>
<tr>
<th>Research Qualifications</th>
<th>N</th>
<th>(\bar{X})</th>
<th>SS</th>
<th>sd</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>58</td>
<td>25.26</td>
<td>3.93</td>
<td>178</td>
<td>5.636</td>
<td>.00</td>
</tr>
<tr>
<td>No</td>
<td>122</td>
<td>21.47</td>
<td>4.34</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

According to Table 5, the variable of scientific research experience makes a significant difference in the research qualifications of preschool teacher candidates and their level of anxiety towards research, \(t(178)=5.636\) \(p<.05\); \(t(178)=2.061\) \(p<.05\). Comparing the preschool teacher candidates who had scientific research experience to those who did not, the ones who did possess higher research qualifications and lower research anxiety.

Tables 6 and 7 show the results of a one-way variance analysis (ANOVA) used to determine whether or not the research qualifications of preschool teacher candidates and their level of anxiety towards research differ according to the class level of preschool teacher candidates.

Table 6.
The Descriptive Statistics of Research Qualifications and Research Anxiety Scale Points.

<table>
<thead>
<tr>
<th>Class Level</th>
<th>N</th>
<th>(\bar{X})</th>
<th>SS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Qualifications</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Freshman (1st year)</td>
<td>22,72</td>
<td>3.86</td>
<td>.51</td>
</tr>
<tr>
<td>Sophomore (2nd year)</td>
<td>22,12</td>
<td>4.59</td>
<td>.66</td>
</tr>
<tr>
<td>Senior (3rd year)</td>
<td>20,03</td>
<td>4.22</td>
<td>.73</td>
</tr>
<tr>
<td>Junior (4th year)</td>
<td>25,33</td>
<td>4.35</td>
<td>.66</td>
</tr>
<tr>
<td>Research Anxiety</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Freshman (1st year)</td>
<td>32,1468</td>
<td>6,49347</td>
<td>.86</td>
</tr>
<tr>
<td>Sophomore (2nd year)</td>
<td>30,6302</td>
<td>5,37800</td>
<td>.77</td>
</tr>
<tr>
<td>Senior (3rd year)</td>
<td>34,5638</td>
<td>6,00614</td>
<td>1.04</td>
</tr>
<tr>
<td>Junior (4th year)</td>
<td>31,7850</td>
<td>6,29354</td>
<td>.95</td>
</tr>
</tbody>
</table>

Table 7.
The research qualifications of preschool teacher candidates and their level of anxiety towards research according to their class level—the results of a one-way variance analysis (ANOVA).

<table>
<thead>
<tr>
<th>Source of variance</th>
<th>Sum of squares</th>
<th>Sd</th>
<th>Mean of squares</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intergroup</td>
<td>547,292</td>
<td>3</td>
<td>182,431</td>
<td>10,095</td>
<td>.000</td>
</tr>
<tr>
<td>Intragroup</td>
<td>3180,457</td>
<td>176</td>
<td>18,071</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sum</td>
<td>3727,749</td>
<td>179</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intergroup</td>
<td>308,410</td>
<td>3</td>
<td>102,803</td>
<td>2,785</td>
<td>.042</td>
</tr>
<tr>
<td>Intragroup</td>
<td>6496,383</td>
<td>176</td>
<td>36,911</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sum</td>
<td>6804,794</td>
<td>179</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
According to Tables 6 and 7, the class level variable makes a significant difference in the research qualifications of preschool teacher candidates and their level of anxiety towards research, $F(3, 176)=10,095 \ p<.05$; $F(3, 176)=2,785 \ p<.05$. The LSD test (a post hoc test) was used to determine the significant difference between the groups. According these results, preschool teacher candidates who are in their 4th year of study possess more research qualifications than teacher candidates in other class levels. Teacher candidates who are in their 3rd year of study possess the lowest research anxiety. There is a negative significant correlation between points obtained from research qualifications scale and research anxiety scales ($r=, 365, \ p<.05$).

**Discussion and Conclusions**

Knowledge going out of date at a fast pace and being renewed at even higher rates makes it necessary for individuals to possess research skills. Accordingly, in the Turkish education system learners are provided with research experience that involves asking questions, collecting data for a solution to the problem, analyzing, interpreting the data, and sharing opportunities. Also, teachers with a research identity become a model for learners. Therefore, today’s teacher candidates should have a research identity and positive attitudes towards research. However, Kucuk (2002) states that teachers only take part in the process of data collection in general. However, not only should they participate in data collection process but also they should design research at their classrooms are emphasized by Kucuk (2002). Artvinli (2010) also emphasizes the role of teacher as researcher. Moreover, most of primary school teachers are willing to research in order to develop instructional methods and techniques but not having enough time and resource for research are stated to be an obstacle by the primary school teachers are emphasized also (Ekiz, 2006). In contrast to such findings, this study indicates that preschool teacher candidates possess high research qualifications and a low level of anxiety towards research. According to Korkmaz, Sahin and Yesil (2011), teachers have enough knowledge and skill about research process. With this result in mind, university instructors should involve undergraduates in research activities and teach them how to conduct research. Higher education institutions should create a learning environment for undergraduates through their research applications and make the research process easier for undergraduates. Currently, lifelong learning aims to improve individuals’ access to knowledge and this requires raising individuals with research qualifications who take responsibility to obtain knowledge. At higher education institutions teacher candidates should graduate with research qualifications and they should serve as role models for other students. It is thought that research qualifications are successfully acquired at higher education institutions. Also, teacher candidates who have the opportunity to observe instructors with research skills, take part in research activities, and enjoy this process possess low levels of anxiety towards research. Shortly, prospective teachers’ high research competency and low research anxiety can be explained through the instructors with research competency and research oriented instruction at teacher training institutions.

Gender makes no significant difference in research qualifications of preschool teacher candidates and their level of anxiety towards research is concluded; this is probably because male and female teacher candidates take part in the same learning environments and therefore have similar qualifications and affective behaviors. The
Gamze Yavuz Konokman, Tuğba Yanpar Yelken & Gürol Yokuş

The research process involves many steps and gender has no significant effect on learning the steps of this process. This situation shows that preschool teacher candidates have positive attitudes towards the research process regardless of gender. Similarly, Yavuz Konokman, Tanriseven and Karasolak (2013) emphasize gender isn’t a factor leading to statistical difference in the prospective teachers’ attitudes towards educational research. Also, teachers’ research competency doesn’t differ regarding gender (Korkmaz, Sahin and Yesil, 2011) is the finding correlated with the results of the studies above.

When analyzed at class level, preschool teacher candidates who are in their 4th year of study possess the highest research qualifications and fairly low research anxiety. This is possible because these students spend more time in study and research environments than students in other levels. Fourth year undergraduates have more advantages thanks to their adaptation, orientation to the university, and placement in more studies, which may be the reason why they have high research qualifications. In terms of research anxiety, undergraduates in their 3rd year of study possess the highest level of anxiety towards research, and 2nd year undergraduates possess the lowest level of anxiety. As undergraduates get closer to graduation they may begin to feel insufficient and therefore have the highest research anxiety. A scientific research methods course is provided in the last year of the educational program in early childhood education and anxiety levels of research decrease with this course.

Preschool teacher candidates who took a scientific research methods course possess higher research qualifications and lower research anxiety than those who did not take the course. In the 4th year of study a scientific research methods course and a research project course are supplied. These courses aim to help improve the scientific strength of undergraduates, design scientific research that examines problems encountered in educational environments, and conduct research. The definition of research, the research process, and research qualifications are successfully taught in these courses. The effect of scientific research method course and prior research experiences on attitudes towards research are focused in a variety of studies (Saracaloglu, 2008; Saracaloglu, Varol and Ercan, 2005; Lei, 2008). These studies indicate that prospective teachers having the scientific research method course have more positive attitudes towards research. Because scientific research method course give chance to the prospective teachers to take part in research process frequently. Based on the results of such studies, “Scientific Research Method” course is integrated into the curriculum of teacher training institutions.

Preschool teacher candidates who had scientific research experience possess higher research qualifications and lower research anxiety than those who did not. Also, Yavuz Konokman (2015) states that preschool teacher candidates’ resistance behaviors towards research are possible to be decreased via inquiry based learning activities. It is added that preschool teacher candidates having been resistant to research before because of the factors such as instructors’ incompetency, their negative feelings about research, faulty instruction, etc. become willing to making research after they has experienced in research during a semester (Yavuz Konokman, 2015). Moreover, the positive changes in the second year teacher candidates’ beliefs and attitudes regarding research occur during an introductory course on research at an institute for primary teacher education (Van Der Linden, Bakx, Ros, Beijaard and Van Den Bergh, 2015). Therefore, it can be inferred that scientific research experience
gives undergraduates the opportunity to learn how a research process occurs by doing it practically. Even when an undergraduate takes a scientific research methods course, s/he may have difficulty in putting it into practice. A research project course provided in the 4th year aims to have preschool teacher candidates show their theoretical knowledge in practice. Teacher candidates have the ability to state a problem situation, develop a research project, collect data about a problem, analyze data, and reach solutions and results. Individuals who graduate from an early childhood education program should be aware of the scientific research process, be able to use this process in an effective way, and therefore gain benefits from things like a literature review of their area of study, sharing results, finding a solution to a problem, and contributing to knowledge production and literature. Similarly, research experience is a variable leading to statistical difference in research attitude is proven in the studies (Bennett, 1994; Saracaloglu, 2008; Saracaloglu, Varol and Ercan, 2005; Tavsancil, 1995; Walker and Cousins, 1994). The results of these studies indicate the participants having prior research experience has more positive attitude towards research than the others inexperienced.

Instructors who of these courses should identify the current knowledge of undergraduates about what they are about to learn and then attempt to correct the students’ misconceptions about research. In the literature review, there exists a very limited number of studies about research qualifications and research anxiety. Therefore, a variety of studies can be conducted related to conceptions about research, research qualifications, and exposed student misconceptions. A positive correlation is found between research qualifications, research experience, and taking a scientific research methods course. A scientific research methods course is suggested to take place in the 1st year of the early childhood education program, which may make a positive contribution to the research anxiety of undergraduates. Also, for research experience, undergraduates should be given more opportunities to take part in research environments, spend more time there, have easy access to the necessary materials, and be given guidance. A positive research environment plays an important role in students having positive affective attitudes and gaining a research identity. Also, undergraduates should be supplied with previous research project samples in order to examine them in detail, which would probably decrease their anxiety and apprehension levels. Lastly, it is a good idea for undergraduates to create a web portal about their own authentic research projects.

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Okulöncesi Öğretmen Adaylarının Araştırma Yeterlikleri ve Araştırmaya Karşı Kaygı Düzeyleri

Atıf:
Doi: 10.14689/ejer.2015.60.4

Özet

Problem Durumu


**Araştırmanın Amacı**

Bu çalışmada öğretmen adaylarının araştırma yeterliliklerinin ve araştırmaya ilişkin kaygısı düzeylerinin çeşitli değişkenlere (cinsiyet, sınıf düzeyi, bilimsel araştırma teknikleri dersi alma durumu ve bilimsel araştırma deneyimi) göre belirlenmesi ve kaygı düzeyi ile araştırma yeterlilikleri arasındaki ilişkiyi saptanması amaçlanmıştır.

**Araştırmanın Yöntemi**


**Araştırmanın Bulguları**

Çalışmada okul öncesi öğretmeni adaylarının araştırma yeterliliklerine sahip olduklarını ve genel olarak araştırmaya ilişkin kaygı duymadıkları saptanmıştır.
Universitàların araştırma işlevine sahip olması nedeniyle üniversitelerde görev yapan öğretim elemanlarının araştırmacı kimliğe sahip oldukları ve derslerinde öğrencilerin araştırma etkinliklerine katılmalarını sağladıkları düşünülülmektedir. Bu durumda yükseköğretim kurumlarında araştırma uygulamalarıyla bireyleri araştırma becerileri kazanılarak kolaylaştırıldığı ileri sürülmektedir.

Araştırmının Sonuçları ve Önerileri


Araştırmanın bulguları dikkate alındığında öğretmen yetiştiriciliği alanını oluşturmaktadır. Ayrıca araştırmacının kimliğinin sahip olması ve öğrenciler için model olmaları önemlidir.


Anahtar Kelimeler: Araştırma yeterliliği, araştırma kaygısı
Re-Thinking Assessment: Self- and Peer-Assessment as Drivers of Self-Direction in Learning

Kathy HARRISON*,
Joe O’HARA**,
Gerry McNAMARA***

Suggested Citation:
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Abstract

Problem Statement: This paper focuses on assessment in Irish education, which, despite best intentions, shepherds students through the process to an extent that the individual is prone to undervalue her/his ability to trust in the self as a rational, self-thinking individual. In Ireland’s assessment system lies the paradox whereby from childhood the learner develops the habit of depending on ‘authority’ (teacher/examiner) to assess their work, with the expectation that the learner will graduate a self-reliant, achieving person.

Purpose: This paper shows how a step away from the traditional form of assessment, beginning at elementary school, can help redress this incongruity. Self- and peer-assessment, in a study with 523 students and their teachers, is shown to be more congruent with developing skills, attitudes and behaviour necessary to help students graduate as self-reliant and self-directed individuals.

Methods: These were from the post-positivist / phenomenological / interpretive family. The study used Action Research from the emancipatory paradigm. Concerned with experience, phenomenological analysis emerged from the interpretive paradigm. Throughout, the quantitative element added a positivist dimension which was a constant aspect, strengthening the research. In accordance with phenomenological philosophy, attention was paid to minority viewpoints, ensuring the study was inclusive and culturally sensitive.

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Results and Findings: A sociological phenomenon, learning applies to all, and any theory of learning must embrace all learners, in accordance with social justice. During self- and peer-assessment, students developed skills as critical, creative thinkers, effective communicators, collaborative team workers, becoming more personally productive and effective. Their self-awareness and self-reflection increased significantly. All of these aspects are essential components of self-direction.

Conclusions and Recommendations: Self- and peer-assessment, a culturally responsive student-teacher partnership approach, serves all ages in any learning context. It is a step toward redressing the balance from dependence on the teacher/examiner to self-direction. Self- and peer-assessment is a sustainable lifelong learning methodology and needs implementing urgently at all levels of the curriculum. This will lead to a reconstruction of boundaries as learners take more control of their assessment and learning. The focus is on ‘self’, learning control and self-direction through the practice of assessing own and peer performance. Ultimately, this creative form of assessment influences, self, community and greater society.

Key Words: Self-assessment, peer-assessment, self-reliance, self-direction, culturally responsive.

Introduction

Repeated responses to recurrent stimuli may fix a habit of acting in a certain way. All of us have many habits of whose import we are quite unaware, since they are formed without our knowing what we were about. Consequently they possess us, rather than we them. They move us; they control us. Unless we become aware of what they accomplish, and pass judgment upon the worth of the result, we do not control them.


This paper investigates one such habit which needs rethinking: the philosophy and practice of assessment. It reconsiders the tradition of entrusting the teacher (examiner) with sole responsibility for assessment, and the consequences. It documents a study which resulted from an attempt to replace traditional assessment with self- and peer-assessment (S&PA), designed to generate more self-directed learners. The research was initiated in higher education, followed by a series of studies in elementary (primary), post primary, further and higher education. It addresses a dearth of published material on: (1) research into S&PA cohesively integrated across the spectrum of lifelong learning; and (2) the role of traditional assessment in moulding conforming, dependent individuals.

It argues the need to implement S&PA as young as possible, to improve the prospect of (a) its up-take, and (b) ingrafting the practice of assessing own work and that of others. Finally, it shows how this outlook reflects a democratic philosophy of
education and forms a foundation for a self-directed, lifelong educational framework.

Concepts of Assessment and Dependency

Traditionally, assessing student learning outcomes has fallen to the teacher/examiner, while in S&PA, according to Fautley and Savage (2008: 51), ‘peer-assessment involves students assessing the work of other students, their peers; while self-assessment involves each individual in a consideration of their own work’.

Biggs (1999: 157) describes traditional assessment as three processes: setting criteria, selecting evidence, and judging how well the criteria have been met, concluding ‘the teacher is the agent in all three assessment issues’. The Irish Department of Education and Science (DES) (1995: 30) explains about the elementary teacher’s role in assessment that,

most teachers currently assess their students’ progress, mainly in the cognitive areas. Assessment practice ranges from observation, classroom discussions and homework to the use of standardised tests, both norm- and criterion-referenced.

We begin with a look at the custom of traditional assessment because it is pervasive, perpetuating a teacher-centred assessment style. It fixes in the learner’s mind a teacher-in-charge mentality. Teacher-centred assessment can lead to a loss of sense of self, jeopardising immediate progress and future outcomes, and can lead to Seligman’s (1975) ‘learned helplessness’. Boud (1995: 4) underscores the possible consequences, recalling

. . . being told in primary school that I couldn’t write and had nothing to say; a remark which for many years was self-fulfilling and probably led to me failing ‘O’ level English Language twice.

Leaving Boud with a strong interest in assessment, he has since become a leading advocate for student involvement in assessment, maintaining, ‘assessment . . . has to move from the exclusive domain of assessors into the hands of learners’ (Boud, 2000: 151). Stefani (1998: 339) goes further, declaring that ‘given the importance to students of developing the capacity for self-assessment and evaluation, the unilateral control of assessment assumed by many academic staff can only be viewed as pedagogically unsound’. The drawbacks of traditional assessment are compounded when you add in the changing cultural face of the Irish classroom. In one elementary class studied, as many as eighty percent of the students were from migrant families (English was not their first language). Diversity cannot be addressed adequately unless teaching and learning methods, including assessment, are sufficiently and routinely culturally responsive.

Some researchers found evidence that formal, traditional, assessment (a) disturbs immediate learning outcomes, promoting shallow learning, and (b) adversely affects students’ long-term attitudes and behaviour. For instance, Chansarkar and Raut-Roy (1987: 116) found formal assessment
resulted in the reduction of the efficiency of the course work as a teaching aid. The students were more concerned about the grading received than with using assessed work as a learning experience. It discouraged students from experimenting with the development of their own ideas and encouraged conformity with textbook opinion.

On reaching higher education, students are ‘hard wired’ to react to the stimulus of impending assessment. Race, Brown and Smith (2005: 131) observe that ‘nothing affects students more than assessment yet they often claim that they are in the dark as to what goes on in the minds of their assessors’. Boud, Cohen and Sampson (1999: 417) add, challengingly, ‘assessment is the principal mechanism whereby staff exercise power and control over students’. Unwittingly, a process designed as a learning tool to aid personal progress can thwart that progress.

Thus, traditional assessment represents short-term thinking which can neither engender self-direction nor sustain lifelong assessment. S&PA has been found to address these issues, providing sustainable assessment that ‘can be defined as development that meets the needs of the present without compromising the ability of students to meet their own future learning needs’ (Boud, 2000: 152).

The Research

Every teacher’s duty is to provide a level playing field for each learner regardless of background, gender, age, creed or race so s/he can thrive and contribute unique talents to society. Taylor (1998: 218) endorses this sentiment, with the caution all high-flyers had a teacher, as did most of those unfortunate individuals who never took off because their teachers never enabled them to do so! . . . Always remember that in choosing to become a teacher you have acknowledged your own responsibility to meet the personal, social and intellectual needs of every pupil in your care, day upon day, year upon year.

Although relating to elementary school, this principle applies universally. Research has a hand to play as a dynamic entity capable of challenging stagnant and complacent habits. Educational research sustains a mindset open to change, fundamental for innovation and leading edge thinking and necessary for survival, by engendering fresh ideas and offering continuous opportunity to begin anew by providing new perspectives.

As educators, our intention, and the aim of this research, is to facilitate the development of students as independent thinking individuals, who can work interdependently to contribute to society, capable of being agents of change. Initially Action Research provided a natural platform, allowing reflection-in-action and -on-action (Schön, 1983) into own practice, and our partnership with others.

The research began in higher education with evaluation of group work assessment. It involved a class of 52 divided into ten groups to investigate a subject and present findings. Each group presentation was graded, and each group member
received that grade, regardless of input. On the whole groups co-operated, but student feedback showed it to be having a negative impact. A common drawback was the unequal contribution of work by some students. The work was presented on time, but bore the hallmarks of an endurance test to be tolerated by most: the assessment had little to defend itself as a learning methodology.

Assessment is a learning methodology, a point easily overlooked. Viewing assessment as a learning methodology challenged our thinking. Our practice reflected the traditional style of assessment with students working to satisfy the assessment brief.

Although teaching methods were learner-centric, students were uninvolved in assessment: a methodology permitting student input and more learner-control was sought. This reflection and a subsequent literature review led to the introduction of S&PA. The impact was immediate: research findings confirmed that students became more motivated, showed greater interest and were more engaged in helping and providing feedback to each other. To further the research, S&PA was continued into subsequent classes.

The common thread throughout was the teacher. In each case the teacher facilitated the process and it was the teacher upon whom demands were made. Living this experience, their impressions of, reactions to and analysis of the S&PA student-teacher partnership approach forms a prominent part of the research findings: this aspect is documented in this paper. Following this initial implementation of S&PA the research expanded to include students and teachers at elementary, secondary and tertiary level and in further education with early school leavers and senior learners.

Prior to these studies none of the teachers or their organisations had experienced S&PA. According to circumstances, they had been using a combination of traditional teacher-led assessment methods including individual or group studies, written papers, oral or written tests and terminal examinations. In all studies the assessments were based on students working in small groups, for two, pragmatic reasons. Firstly, the initial study was in a group work context; secondly, the assessment design was already in use. This helped to maintain consistency throughout the studies, improving effectiveness in collaborating with each teacher. Also, eliminating as many variables as possible helped maximize the validity and reliability of the research.

The teachers allocated students to groups to work on a project and although the end product of the project was assessed by the teacher, the process was self- and peer-assessed. In all cases students chose their own criteria. The split of marks varied. The initial study had allocated ninety percent of the marks to the teacher for traditional assessment and ten percent to the students for S&PA. In later studies, teachers surrendered between twenty and one hundred percent of the marks to the students’ S&PA. The S&PA was anonymous (examination conditions) and students had the right to appeal, the teacher acting as final arbiter. This was seen as important as, with some cohorts, this mark contributed to their final graduating grade.
Methodology

The research commenced with Action Research ‘to improve practice’ (Elliott, 1991: 49), with knowledge production a subordinate aim. Based on Lewin’s (1948) model, it was informed by McNiff and Whitehead (2002). Later studies employed a phenomenological, interpretive inquiry (knowledge constructed and contextual) as it investigated the experience of other teachers with their learners conducting S&PA (Patton, 1990), containing aspects of Action Science (Schön, 1983). Eleven teachers and 523 students took part in the research. Data gathering consisted of informal initial meetings with teachers, formal, in-depth interviews after each study, observations, and a research journal.

Self- and peer-assessment design. The design was influenced by many, such as Biggs (1999), and especially Lejk and Wyvill’s (2002) discussion on holistic and category-based approaches. The assessment comprised two components: 1) formative, with criteria for feedback to be selected by students, and 2) summative for students to assess overall individual contribution.

For the formative component, each student group selected criteria they believed important in the process (for example, mutual respect, attendance at meetings). Each student marked self and group peers on a five-point Likert scale: none, poor, fair, good or excellent. (For feedback, each scale-point was assigned a score of 0 to 4 which was averaged and rounded for each student).

The summative component consisted of: (a) tutor mark based on how well the product (the presentation) met the objectives and (b) in each group, each student awarded a mark for each member’s contribution to the process (including her/himself), on a scale of: 0 to 4 (none, poor, fair, good, excellent contribution). This provided a weighting factor calculated by the student’s mark divided by the highest student’s mark in the group. Each group member received a pro rata mark which would consist of the tutor’s mark for the product (a), multiplied by the weighting factor (b) and rounded up. (Group member(s) with the highest mark received the tutor mark). The calculation is summarised in Figure 1.

| Mark = | [tutor mark for presentation] × [student’s mark] | [highest student’s mark in the group] |

Figure 1. Summary of calculation of marks

Results

The elementary and one secondary school were girls-only schools, the others were mixed gender. All studies operated smoothly except for the early school leavers, where new students starting at varying times throughout the year made continuity difficult for the teacher and for other students. Nevertheless, the study was completed.
Teachers’ reflections have been analysed, drawing out common themes portrayed in Table 1. Findings are academic, leaning away from personal: selected participant quotes provide balance. Maykut and Morehouse (1994: 161) point out, ‘much qualitative research focuses on people’s words, their thoughts, their perceptions, attitudes, and experiences that can come to life when their words are read aloud’.

Further Education

Early school leavers. Teacher F. reported an unexpected result:

I was pleasantly surprised because they [students] really enjoyed it. And I learnt that they really like responsibility, which I didn’t realise. Feedback is really important, which I knew, but I didn’t realise how important it was to them.

This was notable: initially, the Co-ordinator, eager, voiced the concern ‘I’m afraid you will come here and do a lot of work and they [students] won’t buy into it’. However, F. reported students were ‘more connected with the work, more motivated and more interested than they would have been in previous times’. She observed commitment between students and a sense of competition between groups which she believed the students liked.

When asked what educational level she considered introduction of S&PA appropriate, she thought nine years, because by the end of elementary (12 years),

... they’d have a total understanding of it and then it becomes part of the norm as you get older... It would help them rely on themselves in so many ways, apart from that exact assessment – to believe in themselves more, I’d imagine, and they would be more confident with what they thought.

F. considered student involvement in assessment beneficial because ‘for once in the whole education system they’re asked what do they think. That’s a whole new phenomenon’.

She voiced some concern over honesty of marking:

... tensions between students, like arguments... they may appear problems, but they are not big enough for peer assessment not to happen – if anything, peer assessment could help iron out these situations.
<table>
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<tr>
<th>Disadvantages</th>
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<td>Judge severely – needs tempering with experience</td>
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<td>Time consuming – needs preparation</td>
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<td>Group work – needs moderation</td>
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<td>Speedy – need feedback</td>
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Table 1: Emergent Themes
English as foreign language students. J. recently experienced S&PA as a higher education student. He found it benefited his students as a step toward having ‘control’ over assessment, something most students were not used to. He maintained, it has always been the teacher’s mark . . . so it’s a very new thing to people to actually have a percentage of the mark that they can determine, both what they get themselves and what other group peers get.

He observed, ‘when students gain autonomy in their own learning, the desire, the hunger, when they get to mark each other’s work, it’s brilliant’. Feeling strongly, he reiterated ‘it [S&PA] brings a really good strong working relationship with your students in the classroom and them with each other’.

The drawback in S&PA for J. was that personalities could ‘clash quite strongly’ which he thought could affect the marking outcomes.

Elementary School Education

C., a teacher of forty years experience, was close to retirement. Throughout the process she was very involved with the girls, ensuring the process ran smoothly. She stressed she did not inflict her views on the students nor coach them in how to behave: the students were free to speak and act as they felt necessary to finish their work and assessment.

C. had a truly multicultural blend of European, African and Asian students. Impressed by the impact of S&PA on students’ co-operation, she said it was . . . very worthwhile. One of the students had difficulty and sometimes the penny never drops, but the girls in her group have been so kind to her. I have never seen that before.

When asked if she thought the girls understood what they were doing with S&PA, she replied, ‘yes, I do, I do’. She felt that S&PA could be introduced early in elementary school and said, . . . this particular age group [ten and eleven years] is a very good age group for it because they’ve had the experience of the junior, then they come to this section and then they’re heading on into the senior section, so it is something that would be very good for them to know that they can avail of and use themselves as they go on.

After the assessment, C. checked the completed result sheets, remarking, ‘they have good judgement. I would agreed with [their marks]’. However later she added the caveat that this was not an average class. She said she found the children’s judgement ‘accurate but very severe, not tempered by experience’ and ‘totally unadulterated’.

C. spoke of observing the girls’ excitement as they worked on their project and how they enjoyed being able to assess themselves and each other. She commented that the students ‘exchanged information in a way that they wouldn’t have been doing up to that’.

She also noticed that some of the children were able to direct themselves towards books that were ‘very unattractive to look at with no colour [but they still] read little bits here and there and gained information’ for their project, which she felt added to the
quality of the work. She said, 'I found it great to be able just to let them do it in their own way and trust them to be able to do the work that was necessary and produce the goods at the end of the day’. She felt S&PA was a key influence in how the girls interacted on their project believing

that students knew they were . . . on the line from themselves, it wasn’t a matter of ‘she said at the top’, so therefore it meant more to them. While the project was in progress there was more interactivity between students.

If she had been continuing teaching, C. believed she would have carried on with S&PA ‘to see how it would work with different groups’. She felt the current study enabled the students ‘to think more about their efforts: did I do my best? If I didn’t, well it’s something I can learn from and it’s something I must be on the look out for again, you know’. Although satisfied that the ‘advantages [of S&PA] would certainly outweigh disadvantages greatly’, she acknowledged that there would be a ‘lot of hard work on the person guiding [it]’.

Second Level Education

Two transition year teachers participated in the pilot studies in second level, A. in an urban, girls-only secondary school, and B. in a rural community school. During the course of the study, A. spoke about it being good for her personally. She remarked, ‘I did not realise I did so much to show the students everything and tell them what to do’. B., who had said she also invested a considerable amount of time helping her students, commented, . . . this is the first time I left the work entirely to the group. I have learned to step back from the group; I couldn’t get involved in their delegation, in the work that they have produced. It is very important that the students . . . work independently of teacher so it is not teacher-directed learning.

Urban secondary school. A. spoke on the outcome of the study, saying ‘I’ve learned an awful lot from it [S&PA] that could be used at secondary level’. She also reported that feedback from the girls has been very positive. You know, I think it’s highlighted to them where their strengths and weaknesses are . . . it would be a great advantage to start this in second level’. Commenting on the potential to break down barriers, she said she felt she had to be more aware of herself because what the girls were doing [S&PA] was ‘adult’ and that ‘when I was talking to them I had to bear that in mind’.

In relation to how directed the students were in their work, she said, ‘I’ve seen how the girls have worked. They’ve taken it very seriously. They’ve pushed themselves, you know. Some of them wouldn’t, they would have sat back’.

She also considered S&PA would encourage her students to work ‘. . . more independently [and it had] proved to them that they’ve gotta take full responsibility for their work and you know they’ll reap the rewards’.

Community school. B.’s views were similar to those of teacher A. as she commented, I would totally recommend it [S&PA] and . . . I think it helped them mature. It gave them responsibility.

She observed how S&PA could improve some students’ motivation, explaining,

it creates awareness among the students of their own individual performance and the importance that that makes to the team and that it will
affect their mark as well as themselves. Their performance will be assessed by their peers and the mark that the teacher gives for the overall product may not be the mark that they get because their own peers will know whether they put in the work or not.

When it came to students speaking out, B. encountered a different result with her class. She found ‘the leaders emerged more quickly and stronger leadership was evident in the group’. She considered strong leaders in the group appeared to be more confident, but the ‘quieter students submerged into the background’. However, she considered this a learning curve for these students, remarking

the ones that didn’t speak out, maybe they should have learned from that experience that perhaps they lost out. So if it was to happen again I think they would be more aware of it and would have the confidence to say, ‘I am not going to let this happen again, I am going to speak out this time’.

Another concern was weaker students who may exert greater effort than a more able student, which peers might not acknowledge in the assessment. B. said, ‘I don’t know if they have the maturity to gauge that yet, so a weaker student might just suffer’. However, as mentioned above, C. evidenced kindness shown to a weaker student at elementary level, making it reasonable to infer that children of a much younger age are capable of this level of empathy.

Higher Education

G. and H. teach first year undergraduate students while teacher I. works with postgraduate students. (Author views are interwoven with those of the teachers below).

Institute of technology. G. works in an Institute of Technology and considers the ‘biggest benefit [of S&PA] to them [students] is to rely on themselves – to not look for other people to intervene and take the responsibility’. He maintained that it not only helps students to ‘look critically at why they should get credit’ but it also involves students ‘in assessing what is creditworthy’. Although ‘heavy on time in setting it up initially’, S&PA was not too time consuming for G. and his colleagues. He felt S&PA at all educational levels would add value to students seeking employment. He believed it would be advantageous to students ‘if you can tell [employers] you have leadership skills, you have chaired a group before, you have assessed your peers’. Since this research began, students have progressed to routinely partnering the teacher in their assessment, from first through to final year.

G. observed, during S&PA, students marked fairly as marks correlated with his expectation. He did not notice that the marks were ‘harsh’ as reported by the elementary teacher. He observed students to give the benefit of the doubt in their marks, but were not overly generous.

University. Conducting S&PA with first-year students, H. found it to have advantages, giving ‘a degree of control and input to the students with regard to their formal assessment [and] . . . in devising [their] assessment’, and providing variety in assessment forms. He found it countered ‘the inherent difficulties in group related assessment forms, in that it rewards people’s performance and attendance and participation in groups more so than traditional forms of assessment do’. During the interview H., when
asked about the work needed, said, ‘it’s probably quicker, it probably saves time. It is easier to devise and implement and mark than other forms of assessment’.

Teacher I. works with postgraduate students and has observed several advantages for his students, commenting,

... it [S&PA] allows students to hear feedback from their peers which is, or ought to be, non-judgemental. Of course every feedback is judgemental, but it doesn’t have the connotation of the kind coming from a lecturer, you know ... student-lecturer hierarchy.

He expressed the hope that ‘when they leave us they’ll have an openness for that same process subsequently in their work’, adding that a positive experience would leave them feeling, ‘I learned a lot from that process, I’ve a lot to learn, but ... we would want them to be open to participating in a similar kind of practice in their own professional work’.

When we discussed the response to S&PA, he commented that ‘... [students] would say that they found that module really enjoyable ... would talk about how they’ve moved on and learned and developed and been challenged and grown from that’. He highlighted one disadvantage for the teacher: it was ‘certainly time consuming’.

Senior learners. These were men and women aged from their mid fifties to early seventies. Their teacher, E., made similar comments to other teachers, suggesting S&PA provided students with opportunities for self-reflection and responsibility because ‘you are asked to examine the level of learning yourself rather than having someone hand you back an answer of either you did well or badly or in between’. She maintained that, ‘because you are being called on to evaluate yourself, there is more in trying to understand how you perform, and to a certain extent who you are, to do that’. She also observed increased interaction between the group members.

Talking about S&PA and student confidence, E. suggested that

... there is a certain element of both age and maturity in it ... when you find yourself being challenged in any way, you either rise up to the challenge or you fail and you run away ... It is a braver way of assessing.

She noted as a disadvantage ‘... unlike your traditional assessment, you are assessing yourself rather than having someone qualified, so there is less standardisation’. This question would normally be addressed by the teacher/examiner, in assessing the product. However, with this group, standardisation was not present as the programme had no external assessment and thus there were no standard criteria for E. to assess against. She does raise a good point, but a student-teacher partnership approach should be embedded in this type of assessment for all formal education, which would maintain standards. This does not take away from the value of S&PA in underpinning the use of assessment as a learning method for contributing towards the development of self, and ultimately, community.

Discussion and Conclusion

Long term impact needs longitudinal studies to determine the true value and benefits of S&PA. However, immediate findings suggest it is culturally responsive – serving all ages and ethnicities – from schoolroom, to community context. It is
'lifewide' learning with shared responsibility from planning to assessment, Knowles' (1990: 101) 'cornerstone of democratic educational philosophy'.

It offers learners at all educational levels a voice, and an outlet for using that voice. When elementary teacher C. said to her students, ‘it is important that you give your opinion because you matter and it matters’, she expressed one good reason for student-teacher assessment partnerships. The earlier the voice is found, the greater the chance of developing a sense of self, of self-reliance. Stressed by Knowles, ‘… the process of gaining a self-concept of self-directedness starts early in life’ (1990: 57).

Concepts repeated frequently in the findings were: interaction, responsibility, accountability, autonomy, control, feedback, effort, commitment. These concepts point to self-direction, and self-reliance, while fulfilling the teacher’s main aim to help students ‘become more effective independent learners’ (Rogers, 2002: 138).

There is literature supporting S&PA. Its durability on the one hand and lack of progress on the other is demonstrated by Cowan (1981: 194) whose comments of thirty-two years ago resonate with the present teachers’ views

. . . in each of the three years in which I have offered self-assessment, I have been rewarded by seeing quantum leaps in the learning and development of some of my students – which I have never observed when I have taught in the conventional way.

S&PA needs adopting urgently at all curriculum levels, leading to a reconstruction of boundaries as learners take more control of assessment and learning. The focus is on ‘self’ (learner) learning control and self-direction through practicing assessing own and peer performance, influencing in turn self, group and society. Even then, the full benefits will not be realised until a generation of teachers have been through an education system committed to S&PA.

S&PA as examined in this study appears at least as valid and capable of rigour as traditional assessment. Its reach is far greater than the classroom, holding the potential to help address social and life issues as diverse as stereotyping and peer-pressure. From a young age, through setting criteria, assessing the work of both self and others and providing and receiving feedback, the learner can learn to think independently; she/he can learn the ability to judge whilst being non-judgmental, focusing on the aim of the assessment. This generates the ability to discriminate.

From a young age, the learner learns to make decisions, think critically, take responsibility and be accountable, all of which are essential ingredients of self-direction. The habit of looking for someone in charge to lead the way is arrested as the learner comes to understand that learning, and the way forward, lies not without but resides within.

References


Self-Awareness and Personal Growth: Theory and Application of Bloom’s Taxonomy

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Petru-Madalin CONSTANTINESCU**
Michael J. STEVENS***

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Abstract

Problem Statement: In this article, we summarize a group-based, self-development curriculum based on humanistic principles, framed by contemporary self-determination theory (SDT), and designed in accordance with Bloom’s Taxonomy. The processes of awareness and integration are common to SDT and Bloom’s Taxonomy, and to our knowledge, have not been applied together with the practical goal of promoting the student self-development in an educational setting.

Purpose of the Study: The underlying assumptions of our curriculum hold that (1) the self functions as the psychological agent responsible for regulating personal behavior, and that (2) personal growth is an outcome of the motivation to fulfill intrinsic goals coupled with the integration of learning through an awareness of personal limitations and potentialities. We describe the design and implementation of a school-based curriculum that integrates core elements of SDT with the sequential levels of cognitive and affective learning articulated by Bloom’s Taxonomy and that is intended to facilitate the student self-development.

Method: Three distinct theoretical and empirical ingredients of SDT form the basis of our curriculum: goals and values, organismic integration, and mindful action. These core components of SDT are rooted in the humanistic tradition but can be transformed into a sequence of practical learning goals and activities when viewed through the lens of Bloom’s
Taxonomy. We demonstrate how Bloom’s Taxonomy provides the architecture needed to implement the elements of SDT in such a way that students are able to engage in a programmatic process of self-development. In other words, the levels of Bloom Taxonomy are used to structure the application of the broad SDT/humanistic principles on which personal growth is founded.

Findings: Combined with the anecdotal reactions of group members and facilitators, our impressions suggest that the consistent expression of personally selected values and characteristics requires that these aspects first become internalized as meaningful guides for living, second, motivate behavior that is consistent with the chosen values and characteristics, and third, contribute to a sense of well-being and personal growth.

Conclusion and Recommendations: The process of self-development can be facilitated by the internalization of cognitive learning and is supported by affective processes that, together, yield favorable developmental outcomes for students. Although we did not subject our group-based curriculum to rigorous empirical evaluation, we encourage efforts to establish its effectiveness through qualitative and quantitative research.

Keywords: Self-awareness, motivation, personal growth, Bloom’s Taxonomy

Introduction

Self-awareness is not only a gift, but it is a responsibility.

Mufti James Hannush

Many years have passed since existential-humanistic ideas were developed and empirically tested by research on Self-Determination Theory (SDT). Bloom’s Taxonomy (Bloom, 1956; Bloom, Engelhart, Furst, Hill, & Krathwohl, 1956), an important contribution to the development of school curricula, has also been widely used for some time. However, these seemingly different theoretical and empirical traditions have seldom been linked, despite the fact that their conceptual frameworks are complementary. In this article, we summarize an innovative curricular program based on SDT principles, which in our view is a modern relaunching of the existential-humanistic paradigm, and Bloom’s Taxonomy, which has an applied focus on improving curriculum design and learning outcomes. There are no research studies that have examined our synthesis and application of SDT and Bloom’s Taxonomy. However, from the theoretical and empirical literature (e.g., Bloom, 1956; Bloom et al., 1956; Krathwohl, 2002; Ryan, Huta, & Deci, 2008; Seligman & Csikszentmihalyi, 2000), it is possible to find indirect support for our applied synthesis. For example, one important bridge between the different conceptual and research traditions of SDT and Bloom’s Taxonomy is that the more values and knowledge become integrated into the self, the more likely that academic motivation is enhanced and learning outcomes improve. Our innovative curriculum program has both scientific and applied value in that it allows researchers and practitioners
access to a complex yet efficient program, which calls for a new line of research to empirically test the education-related effects of melding SDT with Bloom’s Taxonomy. The program is consistent with the idea that flourishing should be regarded as an ideal aim of education (Wolbert, de Ruyter, & Schinkel, 2015).

**Humanistic Psychology and Self-determination Theory**

The various conceptual models within traditional humanistic psychology share a central tenet: the fundamental value of the actualization of human potential. Both Abraham Maslow and Carl Rogers (Maslow, 1968; Rogers, 1961) developed optimistic theories that underscore the capacities, opportunities, and innate trajectory of human beings toward personal growth and psychological well-being. Self-determination theory (SDT), developed more recently, has refined and advanced the optimistic perspective of traditional humanistic psychology by placing importance on the centrality of the self as a causal agent in human functioning. It stands in sharp contrast with deterministic and reductionist paradigms favored by contemporary psychological science, such as applied behavior analysis and cognitive neuroscience (Sheldon, Joiner, Pettit, & Williams, 2003). However, research has shown that a positive life orientation in the absence of tangible accomplishment is linked to negative psychological, interpersonal, and real-world outcomes. This paradox has been described in the literature as the tendency in contemporary society to emphasize positive illusions. Positive illusions appear to make life more satisfying in the short term, but in fact lead to negative consequences in the long run (Schneider, 2011). For example, the emphasis on cultivating self-esteem in students in educational settings, which originated with the broader self-esteem movement (Baumeister, Campbell, Krueger, & Vohs, 2003) must be accompanied by real academic growth grounded in real academic achievement for psychologically beneficial outcomes to unfold. Of course, positive illusions can produce a sense of well-being in educational settings, but as Viktor Frankl (1969) noted, genuine and lasting well-being is the result of a “life well-lived”. Thus, without real accomplishments there can be no eudaimonic well-being (Ryan & Deci, 2001).

Ryan and Deci (2001) made a clear distinction between what is called hedonic well-being and eudaimonic well-being. Hedonic well-being centers on pleasurable life experiences, with the accumulation of such experiences leading to greater overall personal happiness. The eudaimonic tradition in contrast emphasizes living life well, that is, making choices that are congruent with authentic being. These choices have been posited to facilitate the development and expression of individual potentialities, which in turn contribute to a sense of subjective well-being. Though related, eudaimonic well-being can be viewed as more profound and enduring than hedonic well-being. For example, Schueller and Seligman (2010) compared the pursuit of pleasure, meaning, and engagement and concluded that the latter two goals, which are considered eudaimonic, are stronger predictors of long-term psychological well-being. Waterman (2008) echoes this view, suggesting that the actualizing of potentialities can be more beneficial in the long-term than the accumulation of pleasurable life experiences. We should note that the traditional humanistic proposition that accurate perceptions of reality are a precondition for well-being and
personal growth (Jahoda, 1953; Maslow, 1950) has been contradicted by more recent research. According to these studies, positive illusions represent healthy defense mechanisms (e.g., Taylor & Brown, 1988), whereas depressive realism (e.g., Alloy & Abramson, 1979) can prove detrimental if left unchallenged (Robins & Beer, 2001).

Positive psychology, while a modern extension of humanistic psychology with a strong empirical foundation, has tended not to focus on issues of positive illusion versus realistic experience and actual accomplishment (Schneider, 2011). As stated above, personal growth has been central to the perspectives set forth by Maslow and Rogers (Maslow, 1968; Rogers, 1961) and, in a way, has been discovered anew with similarly conceptualized SDT as ‘normal’ striving by the individual toward well-being, joy, creativity, and accomplishment. SDT is considered part of the broader positive psychology movement and has led to significant advances by demonstrating that intrinsic motivation, well-being, and adaptive functioning are enhanced by the pursuit and eventual attainment of available and personally meaningful life goals, or aspirations (Deci & Ryan, 2000). Part of this assertion reflects common ground between SDT and social cognitive theory. Social cognitive theories (e.g., Bandura, 1997; Shoda, Wilson, Whitsett, Lee-Dussud, & Zayas, 2015) contend that what is required for well-being to occur is a process whereby individuals aspire to well-being, in other words experiencing oneself as capable of attaining personal aspirations and then attaining them, at least in part. The point of departure between social cognitive theory and SDT is that SDT maintains that self-efficacy and partial goal attainment is not enough to experience well-being; rather the content of aspired-to goals is critical (i.e., intrinsic vs. extrinsic) (see Deci & Ryan, 2000 for a full discussion). A key life goal is the aspiration for personal growth, the pursuit and attainment of which has been shown in numerous studies across many cultures to contribute to well-being and adaptive functioning.

Research on personal aspirations within SDT began in 1993 when Tim Kasser and Richard Ryan (1993) published their controversial article, “A Dark Side of the American Dream: Correlates of Financial Success as a Central Life Aspiration.” Since then, other studies have replicated entirely or in part the claims that the pursuit of reasonably attainable intrinsic goals and/or the achievement of at least some of these goals (i.e., personal growth) enhances the experience of well-being. The relationship between intrinsic motivation and well-being has been demonstrated cross-nationally in research conducted in the United States, Russia, Romania, and Germany (Frost & Frost, 2000; Ryan, Chirkov, Little, Sheldon, Timoshina, & Deci, 1999; Schmuck, Kasser, & Ryan, 2000). Stevens, Constantinescu, and Butucescu (2011) found that personal growth is related to well-being in both US and Romanian students, citizens of two countries with very different cultures and histories.

**Personal Growth and Subjective Well-being in Educational Settings**

There are many examples from theory and research concerning the importance of students’ goals for their academic achievement, well-being, and personal growth (Kiaci & Reico, 2014; Vansteenkiste, Lens, & Deci, 2006; White & Murray, 2015; Wolbert et al., 2015). The theoretical and empirical literature underscores the long-term benefits of striving for and achieving personal growth in tangible ways. Other
studies conducted in school settings have also shown that aspiring to personal growth leads to a variety of desirable outcomes. For example, Bauer and McAdams (2004) and Bauer, Park, Montoya, and Wayment (2015) found that university students with personal, growth-oriented goals displayed higher levels of social and emotional well-being, as well as social and cognitive maturity. Tuominen-Soini, Salmela-Aro, and Niemivirta (2008) found that university students who were oriented toward personal growth (i.e., reflective and experimental growth motivation) scored high on measures of maturity and well-being. These findings have important implications for the design of curricular programs geared toward student psychological development.

Bloom’s Taxonomy was developed out of a need to standardize different aspects of education, such as learning objectives, the curriculum, and evaluative measures (Bloom, 1956; Bloom et al., 1956). Although the taxonomy went unnoticed at first, its popularity grew, and it has since been translated into many different languages (Krathwohl, 2002). The taxonomy has a central cognitive domain that specifies a framework in which distinctive cognitive learning activities are identified for each of the six sequential stages through which the acquisition of knowledge and skills takes place. The six stages of learning that comprise the cognitive domain of the taxonomy are: Knowledge, Comprehension, Application, Analysis, Synthesis, and Evaluation. Although these stages were further subdivided in the original taxonomy (Bloom et al., 1956), their description goes beyond the scope of our article. The revision undertaken by Krathwohl (2002) relabeled several of the stages and transformed the taxonomy into a bi-dimensional structure that accommodates both knowledge and cognitive processes. Notwithstanding revisions to the original taxonomy (Krathwohl, 2002), its fundamental ideas have for the most part been preserved, and it continues to be used by teachers in the design of course content and learning activities.

In addition, a distinctive affective domain was integrated into the original taxonomy. This affective domain has five levels: Receiving, Responding, Valuing, Organizing, and Characterization. Profound learning takes place when the student is able to assign a specific value to the content of what is being learned and then integrate that learning into his or her personal system of experience and values (Allen & Friedman, 2010). The affective domain of Bloom’s Taxonomy resonates with the tenets of humanistic psychology as well as with the propositions that undergird SDT; that is, intrapersonal congruence in values is seen as indispensable to the motivation to pursue meaningful activity and to the experience of well-being and personal growth (e.g., Deci & Ryan, 2000; Rogers, 1964). As already stipulated, intrinsic motivation and well-being are necessary for quality of life (i.e., “living well”). Extrapolating to educational settings, information imparted by instructors should ideally be integrated into the personal worldview of students, which consists of experiential knowledge and values needed to achieve a rewarding learning experience and a psychological transformation in perspective. Transformative learning occurs when certain conditions in educational settings are met such that the worldview of the student is expanded and deepened through the process of learning that intentionally seeks to integrate new information into the student’s experiential history and value system (for a detailed discussion of learning and values, see Deci &
Ryan, 2000; Rogers, 1964; Wolbert et al., 2015). The cognitive-affective transformation just described can have lasting benefits for students, educational institutions, and society as a whole.

Thus, Bloom’s Taxonomy can be applied as a framework for personal growth because it appears to overlap with two of the five mini-theories associated with SDT (Vansteenkiste, Niemiec, & Soenens, 2010). These mini-theories are a group of narrower theories born of inductive-deductive research that constitutes the larger motivational theory of SDT as well as other related conceptual models, some of which obtain from earlier work in humanistic psychology. These overlapping perspectives include: Organismic Integration Theory (OIT) and Goal Contents Theory (GCT). OIT holds that extrinsic motivation, as well as the cognitive and affective content and processes associated with it, contribute to personal growth when extrinsic goals become internalized and serve to promote the realization of an individual’s authentic self via a genetic choices. For extrinsic motivation that has value for personal growth to become internalized and integrated with self-regulated behavior, certain conditions must exist, conditions that offer opportunities to satisfy basic needs, which in our case revolve around hospitable educational environments. GCT, on the other hand, emphasizes goal content as important in determining how someone strives to attain a goal. GCT holds that both the aspirational content (i.e., goals) and the manner in which such goals are pursued are dimensions of motivation that contribute to well-being and psychological functioning (see Deci & Ryan, 2000; Kiaci & Reico, 2014). Personal growth (i.e., intrinsic aspiration) is viewed as a fundamentally worthwhile aspiration to pursue, with well-being and psychological health stemming from the inherently positive consequences of attaining some measure of personal growth.

In the following section, we delineate how Bloom’s Taxonomy can be conceptually tied to humanistic psychology’s core propositions about the conditions required for self-awareness and psychological growth. We then present how learning activities derived from this theoretical integration can be designed to enhance self-awareness and personal growth in students.

Using Bloom’s Taxonomy to Enhance Personal Growth in Educational Settings

Our proposed group-based curriculum to enhance self-awareness and personal growth in students reflects both OIT as well as GCT mini-theories. Namely, the group curriculum provides the facilitative conditions within which academic content can be internalized and prompts students to construe and experience the curriculum not merely as classroom learning, but rather as offering the promise of personal growth, which is an intrinsic goal of SDT. In addition, mindfulness research within an SDT framework (e.g., see Brown, Ryan, & Creswell, 2007) has shown that conscious awareness of deeply held values, coupled with living in accordance with these same values, is a formula for enhancing authenticity and eudaimonic well-being, which are historically humanistic aspirations (Rogers, 1961). Our group curriculum is intended to encourage and support students to become more conscious of their own values and to live by their values so as to achieve greater eudaimonic well-being (e.g., Bauer & McAdams, 2004; Bauer et al., 2015; Kiaci & Reico, 2014;
Ryan et al., 2008). As stated at the outset, one of our main propositions is that, as long as the individual aspires to personal growth and pursues this aspiration vis-à-vis tangible, real-world outcomes, this expression of intrinsic motivation, along with purposive and meaningful forms of extrinsic motivation (Stevens et al., 2011; Stevens, Constantinescu, Uğur, & Constantinescu, 2015), are likely to contribute both to momentary and to enduring adaptive functioning and well-being (White & Murray, 2015; Wolbert et al., 2015), provided that conditions permit the fulfillment of basic needs. At Fatih University in Istanbul, Turkey, we developed a group-based curriculum to facilitate the personal growth of students. The curriculum adopts Bloom’s Taxonomy (Bloom, 1956; Bloom et al., 1956; Krathwohl, 2002) as a model for enhancing learning, self-awareness, and well-being.

Instead of using Bloom’s Taxonomy in the traditional way to assist the curriculum designer and classroom instructor (Krathwohl & Anderson, 2010), we drew on the taxonomy to develop a group-based program intended to promote individualized pathways to self-development. We believe that Bloom’s Taxonomy can facilitate personal growth by activating students’ intrinsic motivation and extrinsic motives that serve higher-order needs, increasing awareness of their real potentialities, and focusing attention on their behavioral choices. We further believe that by being connected psychologically to their personal qualities, students will seek opportunities for personal growth both in the classroom and in non-educational settings (Newman, 2000). In short, Bloom’s Taxonomy, with its developmental levels and applications to learning, provides an ideal framework with which to implement the goal of positive psychology to build strengths in students (Seligman & Csikszentmihalyi, 2000; Wolbert et al., 2015).

Method

Participants

Seventy counseling psychology undergraduates who had basic coursework in group counseling, along with seminars on cognitive and emotional development, positive psychology, social comparison theory, and peer relations were invited to participate voluntarily in pilot groups led by master’s-degree facilitators. Participants applied online to participate in a group study. There was a rule for inclusion as a member of the group study. The participants were required to see graphs with the results of self and classmates’ evaluations on some chosen personal characteristics. The students then clicked on a characteristic that determined what group they would be enrolled in. Students, who didn’t see their own graphs, were not accepted. To be considered, the graph had to have the evaluations of at least ten classmates. Each group had 8-12 students. Group facilitators were graduated master’s students in the counseling or psychology departments, so they had group study experience (during undergraduate and master’s levels). They all volunteered to be supervisors, and they received an online certificate from Akademik Pencere by the end of the program. Additionally, before starting applications, the first author offered them seminars in positive psychology and social comparison theory and
granted them the right to use the online group studies. The supervisors also had experience in leading seminars on positive psychology and social comparison theory and their applications.

Procedure and Results

Our group-based curriculum was first launched as a part of a master’s-level course but evolved into noncredit volunteer opportunities for master’s-degree students and undergraduates. The number of students in any group was restricted to between 8 and 12 in order to ensure adequate individualized attention. Each group met weekly for 10 weeks, with each session requiring 45-50 minutes of class time, and built upon the learning activities and outcomes of the previous session. Some of the particularly important levels of Bloom’s Taxonomy (e.g., knowledge, analysis, and synthesis) required at least two sessions to complete, depending on the group facilitator and level of student participation.

Roles and Responsibilities of the Group Facilitator

Each group facilitator had either a postgraduate certificate in group counseling or master’s-level coursework and training in group counseling through the Department of Counseling at Fatih University. The yearlong training of group facilitators was carried out by the first author, who developed the group-based curriculum over the course of 15 years of academic and practical work in school counseling. Prior to leading the groups, 31 master’s-degree students received academic preparation in the basic principles of cognitive and emotional development, positive psychology, social comparison theory, and peer relations, all of which were presented and extensively discussed in their group counseling course in the school psychology program. As for their orientation and understanding of Bloom’s Taxonomy, all group facilitators received (1) an explanation of how the group-based curriculum was derived from and reflected the cognitive and affective domains of the taxonomy; (2) an opportunity to discuss the learning goals associated with each level of the taxonomy, as well as how they could use their knowledge of cognitive and emotional development, positive psychology, social comparison theory, and peer relations in generating learning activities to facilitate learning goals; (3) instruction on how to identify and apply specific learning activities that are matched to the parameters of specific learning goals at each level of the taxonomy; (4) supervised role-plays that permitted guided practice in facilitating different learning goals through the application of relevant learning activities; and (5) feedback from the trainer and other group facilitators on how the content and format of the curriculum, as demonstrated in the role-plays, realized the cognitive and affective domains of Bloom’s Taxonomy.

After one year of didactic and supervised experiential training, the first author determined that the group facilitators were adequately prepared to carry out the curriculum. Students who comprised the actual groups were recruited from schools in which the master’s-degree facilitators were interning. Once the actual groups were formed and before the learning activities began, the group facilitator introduced students to each other with some “ice-breaker” exercises and informed the group about the ethical guidelines and practical procedures to which they were asked to give consent. The group facilitator strove to engage students respectfully and with
appreciation and encouragement. Specifically, the group facilitator worked to create an atmosphere in which students felt comfortable about being genuine in their self-disclosures and interactions. In each session, the group facilitator emphasized that each human being is endowed with different characteristics and potentialities and thus will experience the world and function within it differently. Therefore, students came to understand that it is normative for there to be a broad spectrum of personal strengths and limitations revealed in group sessions. Emphasis was placed on becoming aware of the salient values and characteristics that each student possesses as a unique individual because recognition of one’s strengths and limitations is the springboard for personal growth and well-being.

Curriculum Focus on Values and Characteristics

Later in the group work, each student selected at least one value or characteristic with the goal of living it more fully and, ultimately, of embodying it. Values such as fairness, helpfulness, respect, responsibility, and truthfulness had been previously identified in the literature as universal (e.g., Kidder, 1994a, 1994b; Kinnier, Kernes, & Dautheribes, 2000; Schwartz, 2006). Other specific values or characteristics that have no claim to universality include achievement, inquisitiveness, hard work, and patience. These were extracted from interviews with teachers and the parents of the students about the values or characteristics they follow and/or wish to inculcate in their students and children, respectively. In this regard, our approach was both nomothetic and idiographic. The values or characteristics that students choose to focus on in group sessions were either universal or personally meaningful and are featured in the examples provided below. Students selected many different values or characteristics to pursue, with some chosen more often than others. For example, confidence in social relationships, openness about sharing feelings, quality of parent-child relationships, and problem-solving competency were frequently selected values and characteristics. Heterogeneity in the values or characteristics chosen by students has advantages since students not only contribute to the recognition and development of these aspects in themselves and others but are also personally enriched by their exposure to diversity.

Levels and Applications of Bloom’s Taxonomy

Although the group-based curriculum is structured for convenience according to the six sequential learning goals that comprise the cognitive domain of Bloom’s Taxonomy, the content of that learning and the learning activities designed to attain it are both cognitive and affective in form. For each of the six levels, there are different learning activities and outcomes that support the goal of enhancing self-awareness and personal growth. However, while always suited to the learning objectives of each level of Bloom’s Taxonomy, specific learning activities were allowed to differ among our groups because of a particular group facilitator’s capabilities and stylistic preferences and because of the varying dynamics of each group’s members. According to Seligman (2007), coaching in positive psychology is a practice without limits to its scope, but it is delimited with regard to interventions. With this issue in mind, we initially approached the development of the group-based curriculum from a nomothetic point of view, incorporating substantive
elements from the cognitive affective domains of Bloom’s Taxonomy. The curriculum evolved into having a significantly idiographic process component because of the need to tailor learning activities to the distinctive composition and affective dynamics of each group. Thus, our curriculum blended the nomothetic perspective favored by SDT and cognitive psychology with idiographic methods preferred by traditional humanistic psychology.

Knowledge

Learning goal: The goal of the knowledge level is to motivate students to reflect on the values/characteristics they selected by having them generate questions about their chosen value/characteristic. We believe that students at this level can learn to reflect on a specific value/characteristic, examine it from different perspectives, and develop specific personalized knowledge that they can then apply to their self-development.

Learning activity: The knowledge level is critical to the activation of intrinsic motivation. Students are usually given two weeks to complete this learning activity, which is sufficient time to reflect on their chosen value/characteristic and interact with other group members. The group facilitator explains the goal of the knowledge level and begins the learning activity by asking why students selected the values/characteristics that they did. After giving students time to respond, they are asked to write on a sheet of paper as many questions as they can about their chosen value/characteristic. The group facilitator informs them that a “famous master” will answer their questions at the next group session. One week later, the group facilitator tells students that each of them is in fact a famous master capable of answering the questions themselves, either individually or collectively.

In one group session, for example, students selected five different values/characteristics: being patient, successful, hardworking, helpful, and curious. Students prepared as many questions as possible for the following session. When the group met next, three students who selected the same value/characteristic - hardworking - read their prepared questions: “What does hardworking mean?, “Why do people call others lazy?,” and “Is doing homework enough to be a hard worker?” All of the students discovered that there were many more questions that they could generate for the value/characteristic of hardworking. As a result, other group members added questions (e.g., “Who are the hardest workers in the world?,” “Is Bill Gates a hard worker?, “How can a musician be a hard worker?”). Prepared and new questions were met with applause, which appeared not only to motivate students who prepared questions, but also those who spontaneously contributed their own questions.

Comprehension

Learning goal: There are two goals associated with the comprehension level. The first is to gather information about the selected values/characteristics and motivate students to examine them by noting the questions and answers that group members offered in the previous session (i.e., knowledge level). The second is to demonstrate that others can construct and experience alternative personal realities, leading
students to examine more critically their own and other values/characteristics. The overarching aim of this level is to facilitate a perspectival understanding and appreciation of the values/characteristics, that is, to promote metacognitive awareness and cognitive-affective development (Kiaci & Reico, 2014; Williams & Blythe, 2002) as well as internalization of that awareness (Schunk, 1999).

**Learning activity:** At this level, students who have been identified as “famous masters” of particular values/characteristics attempt to answer questions about these aspects posed by other group members. The group facilitator asks students to attend closely to each question and answer, encouraging them to respond to any value/characteristic they wish in order to enrich the conversation. For some group members, this process can promote beneficial secondary outcomes, such as comfort and confidence in participating in groups, which is tied to well-being (Berndt, 1999; Wentzel & Wigfield, 2007). If there are important perspectives that have not been identified by students, the group facilitator can prompt additional contributions by using reflective communication skills. Such interventions not only increase the activity level in the group but also serve to summarize and review the output of the knowledge level just completed. Obviously, generating interest and engagement in students is critical given the powerful influence of peers on cognitive and emotional development. Students who select a particular value/characteristic also have the opportunity to learn about some they did not choose, perhaps ones that they will reflect upon in terms of their personal strengths and limitations. Such indirect learning can raise self-awareness and stimulate personal growth. Taking advantage of peer culture as it emerges in group sessions is integral to the learning that takes place at all levels of our taxonomy-based curriculum. In this sense, the process of peer learning provides a means by which to socialize students' motivation, engagement, and attainment (Ryan & Deci, 2000; White, & Murray, 2015).

**Application**

**Learning goal.** The goal of the application level is to focus the attention of students on past actions that reflect their chosen value/characteristic and on what they believe they need to do to behave on a daily basis in ways that are more congruent with salient values/characteristics.

**Learning activity:** After developing a variety of perspectives on values/characteristics through the learning activities conducted in the knowledge and comprehension levels, students are invited to turn their attention to their own behavior, specifically what they did last week. The group facilitator briefly discusses the importance of how each group member puts their selected value/characteristic into daily practice. As a learning activity, students shut their eyes for 2-3 minutes and reflect on what they did during the past week that exhibits their chosen value/characteristic. Students are instructed to reflect on the positive and/or negative events that followed from their actions or inaction. Students are then asked to share their remembered experiences. The purpose of sharing this information is to raise awareness of and motivate appraisal of the degree to which behavior is congruent with previously identified values/characteristics. Students do not appraise their actions while disclosing them, but, as a consequence of making explicit
how they expressed or did not express their chosen value/characteristic, they begin to recognize and evaluate their actions. To be clear, this learning activity is framed as an exercise to heighten the self-awareness of potentialities rather than to find fault. While the group facilitator encourages participation, he or she respects the right of any student not to participate; in such cases, the facilitator relies on the supportive and non-demanding peer culture that has become the group norm to subtly induce participation.

As a continuation of the learning activity for this level, the facilitator invites students to focus their attention on themselves rather than on others. Students who selected a particular value/characteristic are asked to position themselves at a particular point along a line that represents the extent to which they enacted that value/characteristic during the past week. Students have an opportunity to change where they stand if they wish. A line is drawn on the floor at the front of class with numbers printed alongside the line that represent percentages. Each student approaches the line and decides where he or she will stand, explaining to the group why he or she stood next to a particular numerical value. For example, if a student, whose chosen value/characteristic is “hardworking,” stands at the number 50, this decision means that he or she estimates having exhibited hardworking behavior on half of the occasions when such behavior was possible. For the most part, students in our groups stood next to percentages that ranged from 40% to 70%. When asked why they chose to stand where they did, many reported that they did not believe they were especially capable or consistent in performing their selected value/characteristic. Some illustrative reasons that students gave for their low-to-moderate level enactment of values/characteristics were: “I am not good at working hard …; it’s the way I am;” “I am not good at being patient because I get angry very quickly;” and “I am not helpful to my classmates because sometimes I am not as good as I could be.” These examples show how processing the line exercise can enhance awareness of personal limitations.

Students are also asked to identify barriers that prevent them from positioning themselves where ideally they would like to stand. Interestingly, most students were unable to identify any barriers, though some mentioned their parents and teachers. A few students positioned themselves at the number 100. They reported having performed their selected value/characteristic whenever possible and felt very positive as a result. To motivate such students to improve the consistency between their preferred value/characteristic and action (even though they did not perceive a need for improvement), they were asked to identify another student who represents the embodiment of the value/characteristic in question. The outcome of this social comparison to an idealized representative of the selected value/characteristic is a more realistic appraisal of how closely the student’s actions match the value/characteristic.

Once this learning activity is completed, the group facilitator explains the importance of personal agency in the lives of students, how personal agency can be harnessed, and the importance of challenging internal and external barriers that prevent the expression of personal agency (Fox & Riconscente, 2008). In the
discussion that follows, the group facilitator refers back to the knowledge and comprehension levels of Bloom’s Taxonomy, in which students pose and answer questions. The group facilitator reminds students to monitor how closely their actions match their selected value/characteristic in preparation for the next session. The following week, students share their experiences of what they did between sessions. Typically, some students report that they remembered the learning activities of earlier sessions as they encountered new situations and, as a result, strove for greater self-awareness and congruence. If students communicate an aspiration to behave in ways that are more consistent with their chosen value/characteristic, it is not unreasonable to infer that intrinsic motivation is aroused. Realistically, we do not expect students to achieve substantial personal growth in a few weeks; however, we do expect that this learning process will sustain increased self-awareness and personal growth over time. We also believe that it is important not only to support students but also to serve as role models so that they become more inclined to realize salient values/characteristics. We wish to emphasize that students exert personal agency in their decision to apply or not apply what they have learned based on their subjective evaluation of how well this learning fits with their experience and how they want to live their lives.

**Analysis**

**Learning goal:** The goal of the analysis level is to induce students to examine the motives for enacting the chosen values/characteristics, why they were enacted or not enacted, and how the values/characteristics might be expressed in more consistent and meaningful ways. Each student’s expression of a chosen value/characteristic is processed in the group from the perspective of positive psychology; that is, we wanted students to become more aware of personally meaningful action and, thus, more consciously self-regulated, as has been advocated by research on mindfulness within an SDT framework (see Brown et al., 2007).

**Learning activity:** Each student selects one or two behaviors related to their chosen value/characteristic, share his or her thoughts and feelings about the circumstances and motivations for the behaviors, appraises the degree to which a chosen value/characteristic was performed, and generates suggestions to realize greater consistency in the expression of meaningful action. By engaging their distinctive cognitive and affective perspectives, students are assisted in understanding and appreciating how their personal growth is an outcome of personal agency (Fox & Riconscente, 2008). The significance of personal agency is highlighted via the lived experiences shared by students and by the group facilitator, who processes this material and moderates a discussion of the role of personal agency in managing action that contributes to well-being (Fox & Riconscente, 2008; Kiaci & Reico, 2014). Using the “line exercise” first introduced in the application level, students indicate where at this moment they would position themselves based upon the actual (vs. desired) expression of their chosen value/characteristic. The line exercise is intended to raise awareness of any change in the consistent expression of values/characteristics as well as the influence of personal agency on intrinsic motivation and well-being. Although it is not essential for students to carry out
personally desired behavior, the enactment of the chosen values/characteristics is likely to bolster intrinsic motivation for self-awareness and personal growth while the group meets and to sustain intrinsic motivation after the group has ended (Pintrich & de Groot, 1990; Schunk, 1999; Wolters, 2003).

The group facilitator attempts to motivate students who are less inclined to enact their chosen values/characteristics by encouraging them to consider how they might narrow the gap between their performance goals and actions. If properly reframed, students are able to experience disappointments or setbacks as motivational opportunities for greater self-awareness and personal growth. Thus, students are asked to describe how they would act if they were to encounter the same situation in the future. They imagine alternative responses to those situations and how they would appraise the consistency of their actions with their chosen values/characteristics. This learning activity has promise to motivate students not only to become more aware of their actions but also to move them to acquire or improve the competencies needed for self-regulation. Peer support for this exercise is invaluable in freeing students to take risks with minimal concern about losing self-esteem.

Synthesis

Learning goal: The goal for the synthesis level is to motivate students to draw upon other behavior that they already perform consistently in order to increase the consistency with which they enact a chosen value/characteristic.

Learning activity: Students first identify behavior that they believe they perform consistently and offer an explanation for why this is so. Then, students attempt to transfer their awareness of what makes them consistent at enacting the given behavior to the consistent expression of the chosen values/characteristics. Finally, students apply their experiential knowledge and motivation toward improving the enactment of their chosen values/characteristics during the week.

The group facilitator begins by asking students why they believe they are or are not consistent at performing some behavior in general and in certain situations. Students are encouraged to brainstorm strategies for expressing behavior more consistently, including how to compensate for any personal limitations or environmental barriers to consistent performance. Because intrinsic motivation is more likely to increase when opportunities exist to generate and apply authentic solutions to challenges (Burton, Lydon, D’Alessandro, & Koestner, 2006; Levesque & Brown 2007; Levesque, Copeland, & Sutcliffe, 2008), the group facilitator refrains from introducing feedback on the strategies that students generate. This learning activity proceeds under the assumption that, if given the chance, human beings have the capacity and desire to assume responsibility for their personal growth (Burton et al., 2006; Fox & Riconscente, 2008; Pintrich & de Groot, 1990; Wolbert et al., 2015). From an evolutionary psychology perspective, well-being is the result of being able to seek or create conditions that improve the quality of life, and it reflects the adaptive neurocognitive capacities of human beings (Buss, 2000). Oddly enough, the evolutionary perspective comports with humanistic psychology and SDT on the role
of freedom and agency in the decision to pursue goals that have personal meaning and value. Freedom and agency mean that individuals are autonomous and able to identify and strive for personalized goals that represent their experience of genetically unique needs for well-being and personal growth. Only through freedom and agency can individuals respond authentically to the evolutionary imperatives of survival, reproductive success, and psychological development. As Seligman and Csikszentmihalyi (2000) put it, when bridging positive psychology and evolutionary psychology, “individuals are the authors of their own evolution” (p. 9).

For example, a student whose chosen value/characteristic was “hardworking” stated, “I could not concentrate much on doing homework and reading books but could play computer games for many hours without getting bored; I believe I have the ability to concentrate, so I promised myself I would try to concentrate on my homework and textbook.” This excerpt reveals how the student consciously contrasts and then synthesizes consistent with inconsistent behavior, culminating in a commitment to apply the skills associated with one behavior to the goal of enacting a chosen value/characteristic more consistently. To paraphrase Roeser and Peck (2009), the cultivation of conscious awareness transforms internal conflict into new personal growth through the discovery of the difference between the “Me” (i.e., observed self) and the “I” (i.e., active self).

Another student whose chosen value/characteristic was “being respectful” observed that, while respectful to classmates at school, he fights with his older brother at home. He then synthesized consistent within consistent expressions of the chosen value/characteristic and recognized that he could to apply this synthesis to make interactions with his brother more consistent with his chosen value/characteristic: “We need to be respectful and not fight each other at home.” This process of comparison followed by synthesis raises awareness and intrinsic motivation to operate with greater consistency in the enactment of desired values/characteristics across situations (Levesque & Brown, 2007; Levesque et al., 2008; Pintrich & de Groot, 1990) and emotional reactions (Ugur, Tanrikulu, & Tosun, 2015). It may also enhance well-being, as in the case of a student who recounted, “I am happy now. I learned about my strengths, like being hardworking. I can compensate for my weaknesses.”

In working with a student who always claims to express a chosen value/characteristic in situations that call for it, the group facilitator might ask the student to identify a prototype who best embodies the chosen value/characteristic and compare his or her own degree of consistency in expressing the value/characteristic with that of the prototype. Such a contrast will likely foster recognition of the gap between actual and aspired enactment of the chosen value/characteristic and heighten motivation to close that gap.

**Evaluation**

**Learning goal:** The goal for this level is to review the group-based curriculum and its learning goals, learning activities, and learning outcomes. Students are invited to
reflect on how helpful their experiences were in raising self-awareness and in facilitating well-being and personal growth.

**Learning activity:** At the last group session, each student personally reviews the curriculum. Students recall the learning goals and activities of each level as well as the nature of their participation, the emotions they experienced, and the degree to which they believe the curriculum served to increase the consistent expression of the chosen values/characteristics in the context of their everyday lives. The group facilitators in our study observed that, as students progressed through the six levels, they focused more on their strengths than on their weaknesses. Students reported that they believed they could overcome their limitations by maintaining awareness and motivation to enact their chosen values/characteristics. One student summed it up thusly: “I do not need to be shy about expressing my weaknesses and strengths. The important thing is to develop my strengths and compensate for my weaknesses. I have already started to do this.” Another student stated, “There were good activities. I told my parents every week. They also motivated me to improve. I believe I will be better at home and in class.” This comment further suggests that parental support can enhance the motivation of students to pursue their chosen values/characteristics via consistent action (Inzlicht, Bartholow, & Hirsh, 2015; Régner, Loose, & Dumas, 2009).

Finally, most students also praised the supportive and encouraging atmosphere of the group. They expressed an interest in enrolling in another group in order to “work on” a second chosen value/characteristic.

**Conclusion**

We began this article with a description of the theoretical propositions drawn from humanistic psychology, positive psychology, self-determination mini-theories (particularly organismic integration theory and goal contents theory), and mindfulness, all theories that undergird a group-based curriculum developed at Fatih University in Istanbul and intended to enhance self-awareness, intrinsic motivation, eudaimonic well-being, and personal growth. We then presented the curriculum, which is structured according to the learning goals and activities of the six levels in the cognitive domain of Bloom’s Taxonomy, with an infusion of elements from the taxonomy’s affective domain. We believe that the learning goals and activities of the curriculum have promise for yielding psychological benefits for students. Students are guided through a sequence of cognitive and affective self-development learning activities, with each activity building upon the outcomes of the preceding ones, and are accompanied by the support and encouragement of peers and group facilitators. Combined with the anecdotal reactions of group members and facilitators, our impressions suggest that the consistent expression of personally selected values and characteristics requires that these aspects first become internalized as meaningful guides for living then motivate behavior (Shoda et al., 2015) that is consistent with the chosen values and characteristics, and ultimately contribute to a sense of well-being and personal growth. This progression is in line
with the emphasis of Bloom’s Taxonomy on cognitive and affective integration, the notion from SDT of values being integrated into the self (Bloom, 1956; Bloom et al., 1956; Krathwohl, 2002; Ryan et al., 2008), goal-content theory (e.g. Stevens et al., 2011; Stevens et al., 2015), mindfulness (Brown et al., 2007), and positive education (i.e., teaching, building, and embedding social and emotional learning throughout a student's experience; White & Murray, 2015), all of which have beneficial effects on motivation, well-being, and educational performance. Although we have not subjected our group-based curriculum to rigorous empirical evaluation, we encourage efforts to establish its efficacy and effectiveness through qualitative and quantitative research (see White & Murray, 2015). Our application procedure is outlined in detail and has solid theoretical and empirical foundations, so we suggest that future research could easily draw empirical assumptions from them and test them in a rigorous scientific way. For example, the efficacy of the application could be easily tested by conducting the procedure together with a placebo group and having pre and post measurements of both educational and psychological outcomes (e.g., well-being). Qualitative interviews and action research could also be used to investigate qualitatively and in depth the complexity of the proposed students’ improvement, both educationally and psychologically.

References


Perceived Social Support, Depression and Life Satisfaction as the Predictor of the Resilience of Secondary School Students: The Case of Burdur

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Abstract

Problem statement: It has been observed that there are a limited number of studies on the resilience of primary and secondary school students in Turkey. However, it is acknowledged that secondary school students with difficult conditions of life also have to cope with rapid physical, psychological and social changes brought about by adolescence. For this reason, conducting research on the resilience characteristics of students within this age range would be an opportunity to enable them to acquire the abilities that will increase their resilience level. Moreover, the findings obtained from this research would contribute to the acknowledgement of protective factors, especially crisis response studies in the fields of psychological counseling and guidance services.

Purpose of the Study: The general purpose of this research is to analyze perceived social support, depression and life satisfaction as predictors of the resilience of secondary school students of low socioeconomic levels. The examination of students’ levels of resilience was based on gender, who they lived with, and whether their parents were together/separated and were alive/not alive.

Method: The study group of the research consists of 386 secondary school students. Of the students in the sample, 202 (52%) are girls, and 184 (48%) are boys. Of these students, 130 (34%) attend sixth-grade, 138 (36%) attend

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seventh-grade, and 118 (30%) attend eighth-grade. In this research used the relational screening method. To obtain the data for the Resilience Scale for Secondary School Students, The Brief Multidimensional Students’ Life Satisfaction Scale (BMSLSS), Social Support Appraisal Scale for Children and Adolescents and Depression Scale for Children were used. A t-test, one-way analysis of variance, and multi-standard linear regression analysis were used for data analysis in the research.

Findings and Results: The results obtained from the research indicate that perceived social support and life satisfaction significantly predict resilience, whereas depression is not a significant predictor of resilience. Moreover, the resilience of students does not express a significant difference based on gender. The resilience levels of students who live with their parents and whose parents are together was found to be higher when compared to other students.

Conclusions and Recommendation: First of all, in order to increase their resilience abilities, psychological training can be provided through counseling in schools for students who live with only one of their parents or their relatives. Within the scope of student personality services, various social support resources can be allocated for secondary school students whose parents have separated and the father/mother is/are not alive. Since social support and life satisfaction are important variables in regard to resilience, an appropriate education-teaching environment can be provided for such studies to be conducted at schools. In considering schools as important social support elements, increasing school services that meet the needs of the students and transforming the school into an important living area that encourages students to love school can be useful. This can be achieved through sports activities, functional clubs, and creating environments where students can comfortably express themselves. In order to increase resilience levels, psycho-training program start getting risk groups can be developed, and these programs can be experimentally tested. The most important restriction of this study is that the sample group consisted of students living in Burdur, a small city that does not receive many immigrants.

Keywords: Well-being, gender, stressful life events, adolescents

Introduction

Resilience is defined as the ability to cope with and adjust to stress or difficult situations (Garmezy, 1991; Masten, 2001; Masten, Best & Garmezy, 1990, cited in Hand, 2008; Luthar, Cicchetti & Becker, 2000). In this process, which is defined as a successful adaptation to adverse situations, the personality traits of individuals are an important factor. Personality traits are one of the elements that lead to healthy consequences after stressful situations (Reich, Zautra & Hall, 2010). Two basic factors are emphasized in the concept of resilience. The first focuses on relief from stressful
life events, in spite of those events, and the ability to recover from stress and rapidly reestablish balance. The second factor is sustainability, which can be expressed as the ability to sustain healthy reactions to other situations of stress as a result of reacting healthily to stressful life events (Reich, Zautra & Hall, 2010).

Benard (1991) emphasized that the provision of the appropriate environmental conditions are required in order to bring up resilient individuals and stated that resilient children have social competence, problem-solving ability, autonomy, and feelings of purpose, and hope for the future. Adult support is one of the important protective factors for the child to be able to see and to solve problems. Social support is noted to be an important variable in sustaining healthy behavior (Celikel & Erkorkmaz, 2008). At the same time, social support is defined as the information that enables the individual to believe that he/she is loved, valued, cared for and a member of a social network (Cobb, 1976). Individuals with strong social support systems have been found to be good at coping with stressful life events (Callaghan & Morrissey, 1993; Shonkoff, 1984) and overcoming psychological problems (Lara, Leader & Klein, 1998), and they experience less anxiety, behavioral problems and depressive symptoms (Barrera, Fleming & Khan, 2004). Less social support affects the level of resilience as a protective factor in individuals and also is important in terms of the observance frequency of depressive symptoms. Depression is generally revealed as negative thoughts, disappointment, hopelessness and reluctance (Cicchetti & Toth, 1998). A negative perspective towards the world during the early childhood years teaches individuals to disappoint themselves. The negative aspects of experienced situations become more serious, and life situations that are sources of heavy stress increase the risk of depression (Erdogan, 2006). Motivational symptoms observed in depression include apathy and boredom, whereas physical symptoms can consist of sleeping problems, loss of energy and appetite (Steinberg, 2002).

In contrast to individuals with depression, those who love life try various ways to hold onto life and make an effort to overcome difficult situations and pull themselves together. Obtaining satisfaction from life supports this effort. Life satisfaction is closely related to morale, adaptation and psychological well-being (McDowell, 2010). Life satisfaction includes the cognitive judgments of people on their own life and is considered the basic component of the person’s subjective well-being (Joshanloo, 2013). Life satisfaction refers to a person’s internal subjective assessment of his/her life quality. As the level of life satisfaction lowers in children and adolescents, extroversion, internal locus of control, self-concept, active coping, and pro-social behavior decrease, while addictive substance use and psychopathological behavior increase (Huebner, 2004). Self-esteem enhancing skills and stress-coping skills were significant predictors of secondary school students’ life satisfaction (Sahin-Baltaci, 2013). In addition, positive family characteristics affect the resilience of children positively. Positive relationships with neighbors outside of the family and the positivity of relationships with friends and teachers are also among the factors that increase resilience (Soest, Mossige, Stefansen & Hjemdal, 2009).

Numerous descriptive studies were examined (Werner & Smith, 1982; Masten, 1994; Luthar, Cicchetti & Becker, 2000; Masten, 2001; Greene, 2002; Fergus & Zimmerman, 2005; Ahern, Ark & Byers, 2008; Clinton, 2008; Davis, Luecken &
Lemery-Chalfant, 2009; Smith, 2009; Salami, 2010; Wilks & Spivey, 2010; Hanewald, 2011; Rose & Steen, 2015; Coleman, 2015). It has been observed that the studies in Turkey are mostly descriptive (Ogulmus, 2001; Gizir, 2004; Ozcan, 2005; Eminagaoglu, 2006; Karairmak, 2006; Gokden Kaya, 2007; Karairmak, 2007; Dayioglu, 2008; Oktan, 2008; Onder & Gulay, 2008; Sipahioglu, 2008; Terzi, 2008; Oz & Bahadir-Yilmaz, 2009; Bayrakli, 2010; Guloglu & Karairmak, 2010; Kirimoglu, Yildirim & Temiz, 2010; Onat, 2010; Kaner, Bayrakli& Guzeller, 2011; Karatas& Savi Cakar, 2011; Karairmak & Sivis-Cetinkaya, 2011; Savi-Cakar & Karatas, 2011, Yilmaz & Sipahioglu, 2012;Savi-Cakar, Karatas, Cakir, 2014; Malkoc& Yalcin, 2015).

Gizir (2004) analyzed the academic resilience of eighth-grade students in primary education and determined that high expectations at home, attention and affection in relationships at school, and attention and affection in friendships are the most basic external protective factors that predict the academic resilience of economically poor students. Ozcan (2005) stated that the level of resilience and protective factors in high school students whose parents are together is higher than those whose parents are divorced; also, there is not a significant difference in their resilience based on gender. Eminagaoglu (2006) found that street children between the ages of 12–16 are rather inclined to cooperative behavior and establishing emotional affection. Their emotional ties within groups of friends are the most important characteristic of resilience in their lives. Gokden Kaya (2007) studied the roles of self-respect, hope, and external factors in the prediction of resilience of second-grade students attending regional primary boarding schools and found that these factors predict resilience at a significant level. Dayioglu (2008) found that learned strength, perceived social support and gender significantly predict the resilience of adolescents who are preparing for the university examination. Moreover, Dayioglu stated that the resilience of males is higher than females.

Oktan (2008) obtained the result that the resilience of adolescents preparing for the university examination indicated a significant difference based on problem-solving ability and life satisfaction. Onder and Gulay (2008) detected a significant relationship between the self-concept and the resilience of eighth-grade students. Furthermore, they found that the resilience of girls was higher than that of boys. Sipahioglu (2008) found that the resilience of adolescents in different risk groups differed based on the variables of poverty (with his/her family), living with a single parent, gender and type of school. Onat (2010) stated that the levels of resilience of first-grade high school students who perceive their parents democratically are significantly higher. In addition, students’ levels of resilience were found to differ significantly based on the school that the child currently attends, the child’s age, number of siblings, family’s monthly income, mother’s level of education, parents’ professions, where the child’s father grew up, level of protective attitude adopted by the parents, and the attitude adopted by the parents while bringing up the child. Karatas and Savi-Cakar (2011) found that self-esteem and hopelessness are significant predictors of resilience in adolescents. Savi-Cakar and Karatas (2011) found that the social support perceived by adolescents predicts their level of resilience significantly. There is a positive relationship between the resilience level of adolescents and the social support they receive from their family, friends and
teachers, and resilience levels differ based on gender so that girls have a higher level of resilience compared to boys.

It has been observed that there are a limited number of studies on the resilience of primary and secondary school students in Turkey (Gokden Kaya, 2007; Onder & Gulay, 2008). However, it is acknowledged that secondary school students living under difficult conditions also have to cope with rapid physical, psychological and social changes brought about by adolescence. For this reason, conducting research on the resilience characteristics of students within this age range would lead to a better understanding of how they can acquire the abilities that will increase their resilience levels. Moreover, the findings obtained from this research would contribute to the acknowledgement of protective factors, especially in crisis response studies in the fields of psychological counseling and guidance services. Based on these justifications, the general purpose of this research is to analyze perceived social support, depression and life satisfaction as the predictors of resilience in secondary school students of a low socioeconomic level (SEL). The analysis of the resilience levels of students was based upon gender, with whom the student lives, and whether their parents are together/separated and alive/not alive.

Method

Research Design

In the research, the relational screening method was used in order to analyze whether the “Resilience” of secondary school students of a low SEL differs based on gender, with whom the student lives, whether the parents are together/separated and alive/not alive, and whether perceived social support, life satisfaction and depression are significant predictors of resilience.

Research Sample

The research population consists of a total of 24 primary schools affiliated with the central district of Burdur with students in the sixth, seventh and eighth grades attending Turk Hava Kurumu, Sakarya, Cumhuriyet, Turan, Mehmetcik, İstiklal, Yardımseverler, Kemal Solmaz, and Vali Dr. Suleyman Oguz primary schools. Among these pupils are students from a low SEL. The concept of resilience, in the most general sense, can be defined as the ability to cope with difficult conditions of life. Low socioeconomic status negatively affects basic physiological needs, such as accommodation, nutrition and health, and the meeting of some psychological needs based on the educational level of the family. Being resilient is an important characteristic in order to cope with stress and the difficult conditions of life faced by those students living under such circumstances. For this reason, the research population consists of secondary school students of low socioeconomic status.

The sample group was selected based on the simple random sampling method where each student in the research population has an equal and independent chance of taking part in the sample group (Karasar, 2007). The sample group of the study
consists of 386 students selected by the above method. Of the students in the sample, 202 (52%) are girls, and 184 (48%) are boys. Of these students, 130 (34%) attend sixth-grade, 138 (36%) attend seventh-grade, and 118 (30%) attend eighth-grade schools.

Research Instrument and Procedure

Resilience Scale for Secondary School Students. In order to determine the resilience of the students, the Resilience Scale for Secondary School Students of 4 factors and 23 items developed by Sahin-Baltaci and Karatas (2014) was used. The first factor of the scale explains 14%, the second factor explains 14%, the third factor explains 11%, and the fourth factor explains 9% of the total variance; all four factors explain 48% of the total variance. Cronbach’s alpha coefficients of the scale are .85 for the entire scale, .75 for the sub-dimension of autogenous resilience, .78 for the sub-dimension of resilience stemming from the family, .72 for the sub-dimension of resilience stemming from a friend, and .73 for the sub-dimension of resilience stemming from the schoolteacher. The test-retest reliability coefficient of the scale is .85.

The Brief Multidimensional Students’ Life Satisfaction Scale (BMSLSS). In the assessment of life satisfaction, The Brief Multidimensional Students’ Life Satisfaction Scale adapted by Siyez and Kaya (2008) was used. The test-retest reliability of BMSLSS was calculated as .82 and the internal consistency coefficient was calculated as .89. The total correlation of the items in the scale varies between .64 and .78. The internal consistency coefficient calculated within the scope of the research has been found to be .83.

Social Support Appraisal Scale for Children and Adolescents. In order to measure perceived social support, the Social Support Appraisal Scale for Children and Adolescents, developed by Dubow and Ullman (1989) and adapted to Turkish by Gokler (2007), was used. The criterion validity of the scale was calculated as r= -.62 (p<.01) and the internal consistency coefficients obtained for sub-dimensions were calculated as .89, .86, and .88 respectively; the test-retest reliability coefficient was determined to be .49 (p<.01) for the entire scale; the split-half reliability was determined as .82; the item-total reliability relation of items with a total points was found to vary between .34 and .64. Cronbach’s alpha internal consistency coefficient of the scale is .93. Cronbach’s alpha internal consistency coefficient was calculated as .94 for this research.

Depression Scale for Children. In order to measure depression, the Depression Scale for Children, developed by Kovacs (1981) and adapted to Turkish by Oy (1990), was used. The test-retest reliability of the scale was found to be .80. The criterion relative validity coefficient of the scale and the correlation of it with the childhood depression grading scale points is .61. The internal consistency coefficient calculated in this study is .80.

Measures were administered to students in groups by researchers. The surveys were administered to students from one class from each grade selected at random. Students were informed about anonymity, privacy, and confidentiality and students were told that their responses would remain confidential and were asked to complete
all of the questions in the measures. The instruments took approximately 35-40 minutes to complete. Informed consent was received for all students who volunteered to participate in the study.

Data Analysis

Whether the data in this research met parametric statistical assumptions (such as the data indicating normal distribution, variances being homogenous and obtained with a uniform scale) was determined based on the properties of dependent and independent variables and the purposes of the research. A t-test was used to test the significance of the difference between the means of two independent groups, one-way analysis of variance was used to test the significance of the difference between the means of more than one independent group, and multi-standard linear regression analysis was used to explain the relationship between dependent variables and independent variables with a regression equation (Buyukozturk, 2010). According to this, a t-test was used to test whether students’ resilience levels vary based on gender and with whom they live. One-way analysis of variance was used to test whether it varies based on the conditions of parents being together or separated and alive or not alive. Multi-standard linear regression analysis was used to test whether perceived social support, depression and life satisfaction are significant predictors of resilience.

Results

In the present study, whether resilience levels of secondary school students of a low SEL vary based on gender and with whom they live was tested with a t-test. The results are given in Table 1.

Table 1.

T-Test Results Based on Gender and the Person/People with Whom They Live

<table>
<thead>
<tr>
<th>Gender</th>
<th>n</th>
<th>M</th>
<th>S</th>
<th>df</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>202</td>
<td>80,15</td>
<td>6,88</td>
<td>384</td>
<td>1.78</td>
<td>.07</td>
</tr>
<tr>
<td>Male</td>
<td>184</td>
<td>78,74</td>
<td>8,60</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>People lived with</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother and father</td>
<td>341</td>
<td>79,97</td>
<td>7,46</td>
<td>384</td>
<td>4.47*</td>
<td>.001</td>
</tr>
<tr>
<td>Single parent-relative</td>
<td>45</td>
<td>75,75</td>
<td>9,040</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p<.01

As seen in Table 1, the results of the t-test indicated that females (M=80,15) and males (M=78,74) did not differ significantly or meaningfully on resilience, t(384)= 1.78, p>.05. According to this, the resilience of females and males do not vary. Again, according to Table 1, the difference between the means of the resilience of students
living with their mother and father \((M=79.97)\) and those living with one of their parents or a relative \((M=75.75)\) was found to be statistically significant\((t(384)=4.47, p<.01)\). According to this finding, the resilience of students living with their parents is higher than those living with one of their parents or a relative.

Another variable analyzed in this research project was whether resilience levels differ based on the status of the mother-father being together/separated and alive/not alive. This variable was analyzed with one-way analysis of variance. A Tukey post hoc test was conducted to find the source of the difference, and the results are given in Table 2.

Table 2.

ANOVA Results Based on the Status of Mother and Father

<table>
<thead>
<tr>
<th>Source of variance</th>
<th>n</th>
<th>M</th>
<th>s</th>
<th>F</th>
<th>p</th>
<th>(\eta^2) (Tukey)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother-father</td>
<td>345</td>
<td>79.99</td>
<td>7.47</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>together(A)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Status of mother-father alive-not alive/together-separated</td>
<td>29</td>
<td>75.52</td>
<td>8.69</td>
<td>7.50*</td>
<td>.001</td>
<td>.038 A-B,</td>
</tr>
<tr>
<td>Mother-father</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>separated (B)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother / father not alive(C)</td>
<td>12</td>
<td>74.25</td>
<td>9.76</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\('p<.01\)

Table 2 shows the findings comparing students’ resilience based on whether the mother and father are together/separated and alive/not alive. An examination of Table 2 shows a significant difference between the resilience of students whose parents are together and those who have separated and/or whose mother or father is not alive \((F(2-383)=7.50, p<.01)\). According to the results of the Tukey test, the resilience levels of students whose parents are together are higher compared to students whose parents have separated and whose mother/father is/are not alive. The effect size for these differences was small, \(\eta^2 = 0.38\).

Findings regarding the Predictors of Resilience

In regression analysis, dependent and independent variables should be continuous variables that are measured with an interval scale and the data should indicate normal distribution. Before analysis, the data was checked to establish
whether it had a normal distribution. It was determined that skewness and kurtosis values in all variables were between -1.0 and +1.0 (Buyukozturk, 2007). It was observed that the data had a normal distribution. In addition, the data were controlled whether they were coherent to univariate and multivariate analyses. The Mahalonobis distance coefficient and z point analysis was conducted for outlier analysis in the data set. A z table value at the level of 0.01 for the extreme values with a single variable was checked, either in ascending or in descending order; no data exceeded 3.29 (Tabachnick & Fidell, 2007). Mahalanobis distance was analyzed for the extreme values with a multivariable and no values over 1 were found. Finally, prior to regression analysis, correlation coefficients between dependent and independent variables were calculated in order to analyze whether there is multicollinearity between the dependent and independent variables. The results are given in Table 3.

Table 3.
Simple Linear Correlation Coefficients Indicating the Relationships between Resilience Levels and Levels of Perceived Social Support, Life Satisfaction and Depression of Students

<table>
<thead>
<tr>
<th>Variables</th>
<th>M</th>
<th>S</th>
<th>Pearson Correlation Coefficients (n=386)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resilience</td>
<td>79.48</td>
<td>15.26</td>
<td>1</td>
</tr>
<tr>
<td>Social Support</td>
<td>166.95</td>
<td>23.96</td>
<td>.492**</td>
</tr>
<tr>
<td>Life Satisfaction</td>
<td>35.22</td>
<td>5.66</td>
<td>.478**</td>
</tr>
<tr>
<td>Depression</td>
<td>9.94</td>
<td>5.88</td>
<td>-.373**</td>
</tr>
</tbody>
</table>

**p<.001

According to Table 3, there is a positive significant relationship of resilience to social support and life satisfaction of the students and a significant negative medium-level relationship to depression. However, significant medium-level relationships were found between independent variables. It can be said that this relationship is not of a level to cause multicollinearity according to Buyukozturk (2010). In consideration of the Durbin Watson value used in the model to test autocorrelation, the value, which is desired to be between 1.5 and 2.5 (Kalayci, 2006), was also found to be 1.783. This value indicates that there is no autocorrelation in the model. The results obtained from the Multiple Standard Regression Analysis, which was conducted after proving the conformity of the data to multiple regression analysis but prior to regression analysis, are given in Table 4.
In Table 4, perceived social support and life satisfaction are observed to be significant predictors of resilience, whereas depression is not a significant predictor of resilience despite its indicating a significant negative correlation with resilience. Perceived social support and life satisfaction explain 31% of the total variance ($R^2=.31$, $F(3\,\text{-}\,382)= 58.61$, $p<.001$). In consideration of the signs of regression coefficients of predictor valuables, it is observed that there is a positive significant relationship between social support, life satisfaction and resilience. Analysis of standardized regression coefficients ($\beta$) indicates that the order of importance for predictor valuables on resilience level is social support and life satisfaction.

**Discussion and Suggestions**

According to the results obtained in the study, the resilience levels of secondary school students of a low SEL do not vary based on gender. This finding is supported by the research findings of Ozcan (2005), Terzi (2008), and Kirimoglu, Yildirim and Temiz (2010). Contrary to those studies, other research states that resilience does vary based on gender (Dayioglu, 2008; Onder & Gulay, 2008; Sipahioglu, 2008; Oktan, 2008; Onat, 2010; Savi Cakar & Karatas, 2011; Yilmaz & Sipahioglu, 2011). The differences between findings might stem from the data collection tools used in the studies and the general characteristics of the study groups in which each study was conducted.

According to another finding, resilience levels of students living with their parents are higher than those living with one of their parents or their relatives. The most important transference of familial support is provided through emotional channels and feeds communication in a positive way. Within the period when adolescence appears, they need reliable ties with their acquaintances and a healthy environment where emotional communication channels are open (Ergun, 2008). Family is among the important social support systems in the lives of individuals. For
In the study, the resilience levels of students whose parents are together were found to be higher than that of students whose parents were separated and those whose parents were not alive. Soest, Mossige, Stefansen and Hjemdal (2009) also stated that positive family characteristics affect the resilience of children positively. Moreover, Ozcan (2005) found that students whose parents are together have a higher level of resilience compared to those whose parents are divorced. This result can be explained as the mother and father being perceived as a social support and power within society. Students are able to use this power when coping with difficult situations, in addition to the importance attributed to the nuclear family structure within society. In communitarian cultures, such as Turkish society, family members do not ignore problems of other members, as social support and mutual affinity are important in communitarian cultures. Also, in these groups there is a strong commitment to groups and a lifelong unquestioned loyalty to this commitment (Kagitcibasi, 2006).

Another result obtained from the research suggests that perceived social support and life satisfaction significantly predict resilience in secondary school students of low SEL, yet depression does not significantly predict that. Similarly, Dayioglu (2008) found that social support is a significant predictor of resilience in high school students, and Savi Cakar and Karatas (2011) found the same in adolescents. In the measuring tool he/she developed, Bayrakli (2010) stated that social support predicts resilience significantly and it is an important variable with regard to resilience. In their study, Losel, Bliesener and Koferl (1989) pointed out the support of adults, who are important in the child’s life, as the protective factor in resilience (cited in Goldstein & Brooks, 2006). While affection and support from basic systems such as family, school, and society are among the important variables that affect resilience in preadolescents’ lives, (Rhodes & Brown, 1991), family and other social support networks in particular are stated to be protective factors (Friborg, Hjemdal & Rosenvinge, 2006; Luthar, Cicchetti & Becker, 2000). In addition, individuals with strong social support systems are noted to be able to cope with stressful life events easier and suffer from lower levels of anxiety, depression, and behavioral problems compared to those with weaker systems of social support (Barrera, Fleming & Khan, 2004; Callaghan & Morrissey, 1993; Lara, Leader & Klein, 1998).

Finding pleasure in life and the increase of satisfaction in an individual’s life are correlated with developing positive feelings and emotions for themselves. Resilience would inevitably be influenced at the same rate as the increase in life satisfaction of individuals. In the study on individuals affected by an earthquake, Karairmak (2007) found that resilience is correlated with life satisfaction. Oktan (2008) arrived at the conclusion that the life satisfaction of adolescents preparing for the university examination significantly predicts their resilience. Moreover, it has been detected that adolescents with a high level of life satisfaction also have a high level of resilience, while ones with a low level of life satisfaction also have a low level of resilience. These findings support the results of this study. In consideration of another finding of the study, despite the fact that depression alone provides a
significant negative correlation with resilience, the lack of a significant predictor in the model. Social support and life satisfaction could have reduced the effects of depression.

In accordance with the results of the research, several suggestions can be made for psychological counselors of schools and researchers. First of all, in order to increase their resilience abilities, psychological-training can be provided through counseling in schools for students who live with only one of their parents or with their relatives. Within the scope of student personality services, various social support resources can be allocated for secondary school students whose parents have separated and the father/mother is/are not alive. Since social support and life satisfaction are important variables in regard to resilience, an appropriate education-teaching environment can be provided for such studies to be conducted at schools. In consideration of schools as important social support elements, increasing school services that meet the needs of the students, and transforming the school into an important living area for the students to love, can be useful. This can be achieved through sports activities, functional clubs, and the establishment of environments where students can comfortably express themselves. In order to increase resilience levels, psycho-training programs targeting risk groups can be developed and these programs can be experimentally tested. The most important restriction of this study is that the sample group consisted of students living in Burdur, a small city that does not receive many immigrants. For this reason the findings cannot be generalized to all students of this age. Further studies on the resilience levels of students in this age group, and in wider groups, should be undertaken.

References


Ortaokul Öğrencilerinin Yılmazlık Düzeylerinin Yordayıcısı olarak Algılanan Sosyal Destek, Depresyon ve Yasam Doyumu: Burdur Örneği

Atıf:

Özet


Araştırmanın Amacı: Bu araştırmanın amacı; sosyo ekonomik düzeyi düşük ortaokul öğrencilerinin yılmazlık düzeylerini çeşitli demografik değişkenlere göre ve algılanan sosyal destek, depresyon ve yaşam doyumunun öğrencilerin yılmazlık düzeylerinin anlamlı yordayıcısı olup olmadığını incelemektir.

farklılaşmadığını test etmek için t testi, aile yapısına (biri, ayrı, hayatta değil) göre farklılaşıp farklılaşmadığını test etmek için tek yönlü Varyans Analizi, algılanan sosyal destek, depresyon ve yaşam doyumunun öğrencilerin yıllamazlık düzeylerinin anlamlı yordayıcıları olup olmadığını belirlemek için ise çoklu standart doğrusal regresyon analizi kullanılmıştır.

Araştırmanın Bulguları: Araştırma, kız ve erkeklerin yıllamazlık puan ortalamaları arasındaki fark istatistiksel olarak anlamlı bulunmazken (t(384)= 1.78, p>.05), anne babasılı ile yaşayan öğrencilerin ve ebeveynlerinden biri ya da akrabaları ile yaşayan öğrencilerin yıllamazlık puan ortalamaları arasındaki fark istatistiksel olarak anlamlı bulunmuştur (t(384)=4.47, p<.01). Bir diğer bulguya göre, anne-babası birlikte olan öğrencilerin yıllamazlık puan ortalamaları ile anne-babası ayrı olanların ve anne ve ya da babası hayatta olmayan öğrencilerin yıllamazlık puan ortalamaları arasında anlamlı bir fark vardır (F(2-383)=7,50, p<.01). Son olarak, algılanan sosyal destek ve yaşam doyumu toplam veryansın % 31’ini açıklamaktadır (R=.56, R2=.31 F (3-382)= 58.61, p<.001). Yordayıcı değişkenlerin regresyon katsaylarının işaretlerine bakıldığında; sosyal destek yaşam doyumu ile yıllamazlık arasında pozitif anlamlı bir ilişki olduğu görülüktedir. Standartize edilmiş regresyon katsayıları incelendiğinde (β), yordayıcı değişkenlerin yıllamazlık düzeyi üzerindeki önem sırası sosyal destek ve yaşam doyumu seklindedir.


 Anahtar Sözcükler: İyi oluş, cinsiyet, stresli yaşam olayları, ergenler
The Effect of Organizational Justice and Perceived Organizational Support on Organizational Citizenship Behaviors: The Mediating Role of Organizational Identification

Kamile Demir*

Suggested Citation:

Abstract

Problem of Study: Research on social exchange relationships does not take into account another vital component of organizational life—namely an individual’s sense of belonging and identity. Organizational identification is one of the most crucial factors holding employees together and keeping them committed to the organization. Many studies demonstrated that organizational identification is positively related to organizational citizenship behavior. Some researchers have suggested that organizational identification also might play an important role in social exchange processes. In recent years, the dominant approach has been to conceptualize the relationship among perceived organizational justice or perceived organizational support and organizational identification in terms of social identity as well as social exchange processes.

Purpose of Study: The purpose of the present study was to investigate how the organizational identification mediates the impact of perceptions of organizational justice and organizational support on organizational citizenship behaviors in the context of Turkish preschool teachers.

Methods: Data for this study were collected via a survey of 169 preschool teachers who completed measures of organizational citizenship behavior, organizational identification, organizational justice, and perceived organizational support. In analyzing the collected data, a two-step approach was adopted to test measured variables describing four latent constructs.

Findings and Results: The model was specified and tested using structural equation modeling and was found to fit the data reasonably. The study

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findings show that the model was found to be effective in explaining the variance of organizational citizenship behaviors. Perceived organizational justice and organizational support together explained 70% of the variance in teachers’ organizational identifications. Organizational identification explained 79% of the variance in teachers’ organizational citizenship behaviors.

Conclusions and Recommendations: As an overall conclusion, the results of the study demonstrate that teachers’ identification with the school play a significant role in promoting organizational citizenship behaviors. Furthermore, this study’s findings also suggest that organizational identification serves as an integral mediating mechanism among teachers’ organizational citizenship behaviors, perceived organizational justice, and organizational support based on exchange and identity theories. Because teachers’ organizational citizenship behavior improves school effectiveness, principals should understand the antecedents of these behaviors and be able to make use of them.

Keywords: Social exchange theory, social identity theory, preschool.

Introduction

It is a common phenomenon in developing countries that education systems undergo rapid changes associated with government-initiated reform movements. During organizational changes, when job definitions are ambiguous, schools will necessarily become dependent on teachers who are willing to exert considerable effort beyond the formal role expectations for successful change (Somech & Drach-Zahavy, 2000; Bogler & Somech, 2005). The present study focuses on those efforts that go beyond the delineated role expectations, namely, organizational citizenship behaviors.

Studies show that organizational citizenship behaviors enhance school effectiveness because they release resources for more productive purposes, help coordinate organizational activities, and enable teachers to adapt more effectively to environmental changes (Somech & Ron 2007). When organizational citizenship behavior is encouraged, teachers take it upon themselves to make innovative suggestions, volunteer to sponsor extracurricular activities, and serve on new committees (DiPaola, Tarter, & Hoy, 2005) because people exhibiting organizational citizenship behaviors are more willing and able to take risks (Schnake & Dumler, 2003). Podsakoff and MacKenzie (1997) also assert that organizational citizenship behavior improves organizational effectiveness by improving the social network of the organization, which then reduces conflict and improves organizational performance. Therefore, determining why individuals engage in organizational citizenship behaviors has occupied a substantial amount of research attention (Somech & Drach-Zahavy, 2000). Although a link has been established between high levels of organizational citizenship behaviors and organizational performance, there is limited research on the antecedents that affect organizational citizenship behavior, specifically, the mediating role of organizational identification.
Organizational Citizenship Behaviors

Organizational citizenship behavior is a construct that was introduced in the 1980s, and by Organ who defined it as “individual behavior that is discretionary, not directly or explicitly recognized by the formal reward system, and that in the aggregate promotes the effective functioning of the organization”. This definition depicts three main features of organizational citizenship behavior: First, the behavior must be voluntary. Second, the behavior benefits the organization from an organizational perspective. Third, organizational citizenship behavior has a multidimensional nature (Bogler & Somech, 2005; Somech & Ron, 2007; Podsakoff, Podsakoff, MacKenzie, Maynes, & Spoelma, 2014). Organizational citizenship behavior refers to helping behaviors that are extended to colleagues, supervisors, and students, such as lending a colleague a hand with work overload or preparing special assignments for students and that are extended to the school at large, such as suggesting improvements in pedagogical issues or talking favorably about the school to outsiders (Organ, Podsakoff, & MacKenzie, 2006; Somech & Ron 2007).

There is a large body of literature concerned with organizational citizenship behaviors because scholars have recognized the significant impact of organizational citizenship behavior on the success of an organization (e.g., Somech & Drach-Zahavy, 2000; Bogler & Somech, 2005; Li, Liang, & Crant, 2010). In these studies, several conditions have been identified as possible antecedents of organizational citizenship behavior. The results of some of these studies indicate that citizenship behaviors are positively affected by organizational fairness (e.g., Lavelle, Rupp, & Brockner, 2007; Fassina, Jones, & Uggerslev, 2008; Fassina, Jones, & Uggerslev, 2008; Karriker & Williams, 2009; Walumbwa, Hartnell, & Oke, 2010; Lilly, 2015) and perceived organization and supervisor support (Moorman, Blakely, & Niehoff, 1998; Randall, Cropanzano, Bormann, & Birjulin, 1999; Liu, 2009; Bolino, Hsiung, Harvey, &LePine, 2015;van Knippenberg, van Prooijen,& Sleebos, 2015).

Most of these factors are based on the principle of reciprocity or social exchange. Social exchange theory is a model of human behavior: employees’ desires to maximize rewards and minimize losses support the interactions between them and the organization or its representatives (Wat & Shaffer, 2005). Generally, high-quality exchange results when two parties “take care of each other” by reciprocating favors. The exchange of favors creates “diffuse future obligations” — decreasing the likelihood of keeping an exact tally of favors and increasing the likelihood of engendering a trusting and mutually committed relationship (Sluss, Klimchak, & Holmes, 2008). According to Cho and Treadway (2010), the social exchange perspective predicts that employees also will demonstrate citizenship behavior as a way to reciprocate perceived favors.

Organizational citizenship behavior and perceived organizational justice

Organizational justice has received much attention in the literature because many important organizational attitudes and behaviors can be directly linked to employees’ perceptions of justice (Roch & Shanock, 2006; Wat & Shaffer, 2005; Colquitt, Greenberg, & Zapata-Phelan, 2005; Elma, 2013). Colquitt et al. (2005) asserted that the concept of organizational justice proposes that employees who believe they are treated fairly present a positive attitude toward work.
Recent studies examining justice indicate fairness is a correlate or predictor of organizational citizenship behavior. Organ (1990) suggested that fairness perceptions play an important role in promoting organizational citizenship behavior (Moorman et al., 1998). From this perspective, Organ (1988) asserted that social exchange influences the activation of citizenship behavior for those who perceive organizational justice. Indeed, the norm of reciprocity predicts that an individual who is treated fairly by an organizational authority in procedures would be willing to provide reciprocal favors to the authority, the source of justice. However, Cho and Treadway (2010) suggested that the social exchange perspective may not provide a complete explanation of the underlying psychological processes that drive the procedural justice-organizational citizenship behavior relationship.

**Organizational citizenship behavior and perceived organizational support**

Perceived organizational support is defined as the extent to which employees believe that their organization values their contributions and cares about their well-being (Eisenberger, Huntington, Hutchison, & Sowa, 1986; Rhoades & Eisenberger, 2002). According to organizational support theory, the development of perceived organizational support is encouraged by employees’ tendency to assign the organization human characteristics. On the basis of the organization’s personification, employees view their favorable or unfavorable treatment as an indication that the organization favors or disfavors them (Eisenberger et al., 1986). Rhoades and Eisenberger (2002) asserted that organizational support theory also addresses the psychological processes underlying consequences of perceived organizational support. First, on the basis of the reciprocity norm, perceived organizational support should produce a felt obligation to care about the organization’s welfare and to help the organization reach its objectives. Second, the care, approval, and respect connoted by perceived organizational support should fulfill socio-emotional needs, leading workers to incorporate organizational membership and role status into their social identity. Third, perceived organizational support should strengthen employees’ beliefs that the organization recognizes and rewards improved performance. These processes should have favorable outcomes both for employees and for the organization.

As can be seen, perceived organizational support is commonly explained by social exchange theory. Social exchanges are at the core of the psychological processes underlying the consequences of perceived organizational support (Rhoades & Eisenberger, 2002; Cho & Treadway, 2010). When the organization provides needed support and resources, the subordinate, in turn, will reciprocate via effort, such as commitment and citizenship behavior. Thus, the norm of reciprocity leads to employees engaging in citizenship behaviors that contribute to the well-being of the organization as a whole (Eisenberger et al., 1986; Cho & Treadway, 2010; Nayir, 2012). A growing number of studies (Moorman et al., 1998; Rhoades & Eisenberger, 2002) have demonstrated that perceived organizational support is positively associated with organizational citizenship behavior.

**The mediating role of organizational identification**

Research on social exchange relationships does not take into account another vital component of organizational life—namely an individual’s sense of belonging and identity. Individuals possess a general and pervasive need for belonging and identity. Indeed, building upon social identity theory, organizational identification provides a backdrop for understanding how identity guides individual behavior and cognition.
Organizational identification, which is one of the most crucial factors holding employees together and committed to the organization, is defined as shared beliefs and attitudes among employees on the central, enduring, and distinct characteristics of the organization (Dutton, Dukerich, & Harquail, 1994). Organizational identification is defined by Mael and Ashforth (1992) as a perceived oneness with an organization and the experience of the organization’s successes and failures as one’s own.

One of the key theoretical bases for understanding organizational identification is social identity theory that people use groups as sources of information about themselves and individuals may use their status or social standing in their organizations to enhance their self-worth (Cheung & Law, 2008). Organization identification is a specific kind of social identification (Kane, Magnusen, & Perrewe, 2012). Pratt (1998) mentioned that social identification with organizations serves the individual’s needs for belonging, safety, or self-enhancement.

A person’s social identity can be so strong that he or she defines him- or herself in terms of a deep belonging to and/or connection with the group. Thus, the more individuals identify with their organization, the more they think and act from the organization’s perspective and the more effort they expend on behalf of the organization (Mael & Ashforth, 1992; Dutton, Dukerich, & Harquail, 1994). Stoner, Perrewé, and Hofacker (2011) suggest that when an individual acquires both a sense of community identification and organizational identification, an individual with a fixed capacity to partake in extra-role behaviors would have to choose to which group his or her assistance should be directed. Thus, as Rousseau (1998) pointed out, organizational identification has emerged as a predictor of various individual- and organizational-level outcomes, either directly or through the mediating role of other variables, such as organizational citizenship behaviors. Many studies also demonstrated that organizational identification is positively related to organizational citizenship behavior. For instance, Dukerich et al. (2002) and Riketta (2005) indicated that organizational identification has a significant positive impact on organizational citizenship behavior.

Some researchers have suggested that organizational identification might play an important role in other social exchange processes. In recent years, the dominant approach has been to conceptualize the relationship among perceived organizational justice or perceived organizational support and organizational identification in terms of social identity, as well as social exchange processes (Lipponen, Olkkonen, & Moilanen, 2004). Researchers have highlighted that organizational justice is a significant predictor of organizational identification because perception of justice shapes the thoughts, feelings, and actions of individuals and provides them with ways of evaluating social situations (Cheung & Law, 2008). Similarly, researchers reported a positive relationship between perceived organizational support and organizational identification (e.g., Sluss, Klimchak, & Holmes, 2008). Rhoades, Eisenberger, and Armeli (2001) argued that perceived organizational support can contribute to enhancing feelings of self-worth and self-esteem, analysis from the social identity approach may be useful in supplementing the social exchange approach to better understand the impact of organizational support on employee outcomes.

Therefore, the current study was designed to investigate how the organizational identification documented by the social identity approach mediates relationships between organizational citizenship behaviors and antecedents.
Figure 1 presents the posited structural model specifying the direct relationships of perceived organizational justice (POJ) and organizational support (POS) with organizational identification (OI) of teachers and the indirect relationship of perceived organizational justice and organizational support with teachers’ organizational citizenship behaviors (OCB) via the organizational identification. Based on the theoretical notions and model described above, this research was designed to address the following hypotheses:

H1: Organizational identification has a positive effect on teachers’ organizational citizenship behavior.

H2: Perceived organizational justice has a positive effect on the organizational identification.

H3: Perceived organizational support has a positive effect on the organizational identification.

Method

The model of this study is adopted as the theoretical basis for explaining how determinants affect teachers’ organizational citizenship behaviors via the organizational identification. In the following paragraphs, the methodological details of the current work are discussed.

Study Group

Data for this study were collected via a survey of 169 preschool teachers who participated in a professional development seminar. On average, their teaching experience was 6.7 years (standard deviation [SD] 6.24, median 5, range 1–40). The average number of years of respondents’ work experience was 3.1 years (standard deviation 2.98, median 2, range 1–23).

Study Tools

Organizational citizenship behavior scale. The Organizational Citizenship Behavior Scale is a 12-item Likert-type scale that measures the degree to which the teaching faculty of a school engages in organizational citizenship behavior; the higher the score, the greater the extent of organizational citizenship in the school. Two negatively worded items were reverse coded (DiPaola, Tarter, & Hoy, 2005). Each item was
answered by using a rating scale numbered from 1 (Strongly agree) to 5 (Strongly disagree). The scale was adapted to Turkish by Tasdan and Yılmaz (2008). The total variance explained by the Turkish version of the scale was 46.39%. The internal reliability of the scale (Cronbach’s alpha) was 0.85.

**Organizational identification scale.** Organizational identification was measured with a six-item Likert-type scale previously developed by Mael and Ashforth (1992). The scale was adapted to Turkish by Tak and Aydemir (2004). Each item was answered by using a rating scale numbered from 1 (Strongly agree), through 3 (Neither agree nor disagree), to 5 (Strongly disagree). Total scores could range from 6 to 30 with higher scores indicating a stronger organizational identity (alpha=.85). Factor loadings of the items in the scale were larger than 0.63, and the total variance explained by the scale was 56%. Cronbach’s alpha reliability coefficient of the scale was 0.83.

**Organizational justice scale.** The Organizational Justice Scale developed by Hoy and Tarter (2004) was adapted to Turkish by Taşdan and Yılmaz (2008). It has a 10-item scale that measures the degree to which school operations are fair. Participants used a seven-point Likert scale, from strongly disagree to strongly agree. Factor loadings of the items in the scale are larger than 0.77, and the total variance explained by the scale was 78%. The reliability coefficient of the scale was reported as alpha=0.97 (Hoy & Tarter, 2004). The Turkish version of the scale was also one-dimensional and the total variance explained by this single dimension was 53%. Factor loadings of the items in the scale vary between 0.39 and 0.87. The Cronbach’s alpha reliability coefficient of the scale was 0.88 (Yılmaz, 2010).

**Perceived organizational support scale.** Teachers’ perception of organizational support has been measured using the eight-item version of the Survey of Perceived Organizational Support (Eisenberger et al., 1986). Each item was answered by using a 1–7 rating scale numbered from 1 (Strongly disagree) to 7 (Strongly agree). Four negatively worded items were reverse coded. The factor loadings of the items in the scale were larger than 0.50, and the total variance explained by the scale was 42%. Cronbach’s alpha reliability coefficient of the scale was 0.80.

**Results**

In analyzing the collected data, a two-step approach was adopted to test measured variables describing four latent constructs. The first step involved the analysis of the measurement model, while the second step tested the hypothesized structural relationships among latent constructs. The aim of the two-step approach was to assess the reliability and validity of the constructs before their use in the full model.

**Measurement model**

Confirmatory factor analysis (CFA) was applied to assess the construct validity of the four scales (organizational citizenship behavior, organizational identification, perceived organizational justice, and perceived organizational support) with LISREL 8.3. Each item was modeled as a reflective indicator of its latent construct. The four constructs were allowed to correlate with each other in the CFA model.

The results of the initial estimation of the measurement model provided a satisfactory result ($\chi^2_{(560)} = 940.57$, $p < 0.01$). The fit indices for the measurement model
indicated a reasonable fit between the model and the data ($\chi^2/df = 1.59$, $p = 0.00$; CFI = 0.89; NFI = 0.87; RMR = 0.069; RMSEA = 0.059; GFI = 0.77; AGFI = 0.72). The results showed that all loadings in the model were statistically significant ($p < 0.001$), and the indicators loaded very well on their respective factors. The reliability of each of the five factors was calculated using Cronbach’s alpha to evaluate internal consistency (i.e., reliability). As shown in Table 1, based on the data collected, all constructs exhibited an $\alpha$-value greater than 0.70, a common threshold for exploratory research. Thus, the internal consistency of each construct was fairly high. Table 1 presents the descriptive statistics and $\alpha$-values of the constructs.

### Table 1

**Mean, standard deviations and bivariate correlations of research variables**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>SD</th>
<th>Alpha</th>
<th>OCB</th>
<th>OI</th>
<th>POJ</th>
</tr>
</thead>
<tbody>
<tr>
<td>OCB</td>
<td>46.75</td>
<td>8.76</td>
<td>0.90</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OI</td>
<td>23.90</td>
<td>4.97</td>
<td>0.83</td>
<td>0.63**</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>POJ</td>
<td>38.18</td>
<td>8.77</td>
<td>0.91</td>
<td>0.64**</td>
<td>0.53**</td>
<td>1.00</td>
</tr>
<tr>
<td>POS</td>
<td>30.24</td>
<td>5.58</td>
<td>0.80</td>
<td>0.59**</td>
<td>0.48**</td>
<td>0.59**</td>
</tr>
</tbody>
</table>

**$p<0.001$**

As shown in Table 1, Pearson’s correlation coefficients pointed out that teachers’ organizational citizenship behaviors were positively associated with organizational identification, perceived organizational justice, and perceived organizational support. Organizational identification were also positively correlated with perceived organizational justice and perceived organizational support.

**Hypothesis testing**

The hypothesized structural model was tested using LISREL 8.3 with a maximum likelihood estimation. Maximum likelihood is the most commonly used estimation method in structural equation models. The model’s overall fit with the data was evaluated using common model goodness of fit measures. In general, the model exhibited a reasonable fit to the data for the responses collected. Based on the data from the responses collected, the model resulted in 1.59 in the $\chi^2$ to df ratio, which was satisfactory in respect to the commonly recommended value of 3.0. The fit statistics indicate that the research model provides a reasonable fit to the data ($\chi^2=893.08$, df=563, $p=0.00$; CFI=0.88; NFI=0.86; RMR=0.04; RMSEA=0.06; GFI=0.76; AGFI=0.72). Hypothesized relationships are tested by examining the direction and significance of the path coefficients in the research model. Figure 2 depicts the overall explanatory power and estimated path coefficients.
It was found that organizational identification significantly affected the teachers' organizational citizenship behavior ($\beta=0.89$, $p<0.001$), supporting hypothesis H1. Perceived organizational justice was found to have a significant effect on teachers' organizational identification ($\beta=0.26$, $p<.001$), supporting hypothesis H2. The effect of perceived organizational support on teachers' organizational identification was significant ($\beta=0.62$, $p<.001$), supporting hypothesis H3. Summarized results for the hypothesis tests are shown in Table 2.
Table 2

Hypothesis Testing Result of Direct Relationships

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Path</th>
<th>Coefficient</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>OI → OCB</td>
<td>0.89***</td>
<td>Supported</td>
</tr>
<tr>
<td>H2</td>
<td>POJ → OI</td>
<td>0.26***</td>
<td>Supported</td>
</tr>
<tr>
<td>H3</td>
<td>POS → OI</td>
<td>0.62***</td>
<td>Supported</td>
</tr>
</tbody>
</table>

***p<0.001

Perceived organizational justice and organizational support together explained 70% of the variance in teachers’ organizational identifications. Organizational identification explained 79% of the variance in teachers’ organizational citizenship behaviors. In summary, the model was found to be effective in explaining the variance of organizational citizenship behaviors.

Discussion and Conclusion

The purpose of this study was to investigate how organizational identification mediates the impact of perceptions of organizational justice and organizational support on organizational citizenship behaviors in the context of Turkish preschool teachers. The model was specified and tested using structural equation modeling and was found to fit the data reasonably. Overall, the result of the study provides support for the adequacy of the model of the study for predicting and understanding teachers’ organizational citizenship behaviors. The results of the study indicated that there was a strong link between teachers’ organizational identification and organizational citizenship behaviors. In the model, organizational identification alone explained 79% of the total variance in teachers’ organizational citizenship behaviors.

The results of this study are consistent with other work examining the relationship between organizational identification and organizational citizenship behaviors. Many studies have demonstrated that organizational identification is positively related to organizational citizenship behavior. For instance, Dukerich et al. (2002) and Podsakoff et al. (2009) found that organizational identification has a significant positive impact on organizational citizenship behavior. Riketta (2005) also indicated a positive correlation between organizational identification and extra-role behavior. Researchers (Ashforth & Mael, 1989; Cheung & Law, 2008) suggested that organizations with high levels of employee identification can be expected to benefit from a more cohesive work atmosphere and greater levels of cooperation, altruism, participation and exertion of effort on behalf of the organization, including levels of citizenship behaviors. According to Riketta (2005), members who have a high level of organizational identification will think and act from the perspective of group norms and values, even
if the work contract or control mechanism does not require it explicitly, because they have fused the group norms and values with their self-concept.

The results of this study show that teachers’ organizational identification was significantly predicted by perceived organizational justice and organizational support. Perceived organizational justice and organizational support together explained 70% of the variance in organizational identifications. Consistent with the results of these studies, researchers have highlighted that organizational justice is a significant predictor of organizational identification because the perception of justice shapes the thoughts, feelings, and actions of individuals and provides them with ways of evaluating social situations (Cheung & Law, 2008). Olkkonen and Lipponen (2006) also announced that organizational justice perceptions should affect organizational identifications given the positive social identity-relevant information that justice communicates to individuals. More specifically, justice communicates to individuals that they are respected members within their group and that they can be proud of their group membership. Furthermore, through its link to these feelings of respect and pride, organizational justice should be further related to increased identification with the group.

Scholars have found that perceived organizational support increases employees’ feelings of obligation and positive reciprocity (e.g., Rhoades & Eisenberger, 2002). High quality social exchange relationships are likely to motivate employees to engage in behaviors that have favorable consequences for the organization over time in part because employees tend to identify the organization’s well-being with their own and because they may feel a relational obligation to support the organization (Rhoades, Eisenberger, & Armeli, 2001). Moreover, organizational support also may increase feelings of self-enhancement. As noted by Sluss, Klimchak, and Holmes (2008), organizational membership that increases one’s feelings of self-worth and self-esteem will stimulate organizational identification. Organizational support also affirms the subordinate’s value and informal standing and increases the organization’s perceived attractiveness. Hence, perceived organizational support will enhance the attractiveness of the organization and increase the likelihood of employees’ organizational identification.

As an overall conclusion, the results of the study demonstrate that teachers’ identification with the school plays a significant role in promoting organizational citizenship behaviors. Furthermore, this study’s findings also suggest that organizational identification serves as an integral mediating mechanism among teachers’ organizational citizenship behaviors, perceived organizational justice, and organizational support based on exchange and identity theories.

Because teachers’ organizational citizenship behavior improves school effectiveness, principals should understand the antecedents of these behaviors and be able to make use of them. In line with this, principals can exhibit supportive behaviors toward their teachers by appreciating their contributions, treating them fairly, “being there” for them when needed, and caring about their well-being in order to foster in them a feeling of oneness with the school.
References


Örgütsel Adalet ve Algılanan Örgütsel Desteğin Örgütsel Vatandaşlığa Etkisi: Örgütsel Özdeşleşmenin Aracı Rolü

Atıf:

Özet
Problem Durumu: Gelişmekte olan ülkelerin eğitim sistemlerindeki yenileşme hakereketlerinin başarısı, öğretmenlerin değişimi benimseyerek formal rollerinin ötesine geçip örgütsel vatandaşlık davranışlarını sergilemesine bağlıdır. Örgütsel vatandaşlık davranışlarının sosyal takası teorisi prensipleri doğrultusunda işleyen öncülleri arasında algılanan örgütsel adalet ve örgütsel destek yer almaktadır. Buna göre örgüt ile çalışanların birebirine destek olması ve yararını gözlemesi, güçlü bir adalet algısının oluşması çalışanlarda örgüt aidiyetini artırtarak, onların örgütün vatandaşlık davranışlarını sergileme motivasyonu yoluyla örgüt vatandaşlık davranışları sergilemelerine yol açmaktadır. Diğer yandan sosyal takası teorisi, örgüt ile çalışanlar arasındaki ilişkileri, çalışanların örgüt aidiyetini artırmakta yeterli değildir. Sosyal kimlik teorisi ise örgütle özdeşleşme olarak kavramsal olarak bu yapıyı, olumlu örgütün başarısı ve baarsızlıklarından kendisini sorumlulu bir aidiyet duygusu doğurdu. Böylece örgüt aidiyetinin sadece sosyal kimliklenme değil, sosyal takas sürecinde de önemli bir rol oynadığı görülmektedir. Bu doğrultuda bu araştırmada okul öncesi öğretmenlerin örgütsel adalet ve örgütsel destek algılarının örgütsel özdeşleşme ile doğrudan ilişkileri aracılığıyla örgüt aidiyeti üzerindeki etkisini ortaya koymak, bu doğrultuda araştırma hipotezleri şunlardır:

H1: Örgütsel özdeşleşmenin öğretmenlerin örgütsel vatandaşlık davranışlarına pozitif bir etkisi vardır.
H2: Öğretmenlerin örgütsel adalet algılarının örgütsel özdeşleşmelerine pozitif bir etkisi vardır.
H3: Öğretmenlerin örgütsel destek algılarının örgütsel özdeşleşmelerine pozitif bir etkisi vardır.

Araştırmının Yöntemi: Araştırmının çalışma grubu bir mesleki gelişim seminerinin katılımcısı olan 169 okul öncesi öğretmeninin örgütsel adalet ve destek algılarının örgütsel özdeşleşme aracılığıyla örgütsel vatandaşlık davranışlarına etkisi ortaya koymaktır. Bu doğrultuda araştırma hipotezleri şunlardır:

Araştırmının Amacı: Bu araştırma amacı okul öncesi öğretmenlerin örgütsel adalet ve destek algılarının örgütsel özdeşleşme aracılığıyla örgütsel vatandaşlık davranışlarına etkisi ortaya koymaktır. Bu doğrultuda araştırma hipotezleri şunlardır:

**Araştırmanın Bulguları:** Araştırmanın ölçme modeli için elde edilen uyum istatistikleri doğrultusunda, modelin veriler ile uyumlu olduğu söylenebilir ($\chi^2$/df = 1.59, p = 0.00; CFI = 0.89; NFI = 0.87; RMSEA = 0.059; GFI = 0.77; AGFI = 0.72). Dört faktörün Cronbach’s alpha katsayıları 0.80 ile 0.91 arasında değişmektedir. Faktörler arasındaki korelasyon katsayıları incelendiğinde öğretmenlerin örgütsel vatandaşlık davranışları örgütsel özdeşleşme, örgütsel adalet ve örgütsel destek algıları ile pozitif ve anlamlı bir ilişki görülmüştür. Öğretmenlerin örgütsel özdeşleşme ile örgütsel adalet ve örgütsel destek algıları arasında da pozitif, anlamlı bir ilişki bulunmaktadır.

Yapılan ölçülebilir modelde elde edilen bulgulara göre, öğretmenlerin örgütsel özdeşleşmelerinin örgütsel vatandaşlık davranışlarına anlamlı bir etkisi vardır ($\beta$=0.89, p<.001). Algılanan örgütsel adalet öğretmenlerin örgütsel özdeşlemesini üzerinde anlamlı bir etkiye sahiptir ($\beta$=0.26, p<.001). Algılanan örgütsel de-esteemin de öğretmenlerin örgütsel özdeşleşmesine anlamlı etkisi bulunmaktadır ($\beta$=0.62, p<.001).

Öğretmenlerin algıları örgütsel adalet ve örgütsel destek örgütSEL özdeşlemedeki varyansın %70’ini açıklamaktadır. Örgütsel özdeşleme de öğretmenlerin örgütsel vatandaşlık davranışlarının varyansının %79’unu açıklamaktadır.

**Araştırmanın Sonuçları ve Önerileri:** Araştırma sonucunda öğretmenlerin örgütsel özdeşleşmeleri ile örgütsel vatandaşlık davranışları arasında güçlü bir ilişki olduğu saptanmıştır. Örgütsel özdeşleşme öğretmenlerin örgütsel vatandaşlık davranışlarındaki toplam varyansın % 79’unu açıklamaktadır. Bu sonuç örgütSEL özdeşleşme ve örgütSEL davranış arasındaki ilişkiye inceleyen araştırmalarla tutarlıdır. Ayrıca öğretmenlerin örgütSEL adalet ve örgütSEL destek algısının örgütSEL özdeşlemesinin anlamlı bir yöndeyi olduklarını da saptanmıştır. Örgütsel adalet ve örgütSEL destek algısı birlikte öğretmenlerin örgütSEL özdeşlemederindeki varyansın %70’ini açıklamaktadır. Araştırma sonucunda örgütSEL özdeşlemenin, takas ve kimlik teorilerine dayalı olarak örgütSEL adalet ve örgütSEL destek algısı ile...
öğretmenlerin örgütsel vatandaşlık davranışları arasında bütünleyici bir aracı rolü oynadığı ortaya konulmuştur.

Örgütsel vatandaşlık davranışlarının okulun etkililiğinin geliştirilmesindeki rolü, okul yöneticilerinin öğretmenlerin bu davranışların öncüllerini anlamalarını önemli kılmaktadır. Böylece okul yöneticileri öğretmenlere katkılarını takdir etme, adil davranışa, gereksinim duyduklarında yanlarında olma gibi destekleyici yaklaşımlarıyla okulla özdeşleşmelerini ve bu yolla onların örgütsel vatandaşlık davranışları sergilemelerini sağlayabilirler.

Anahtar Sözcükler: Sosyal takas teorisi, sosyal kimlik teorisi, okul öncesi
Transformational Leadership and Innovative Climate: An Examination of the Mediating Effect of Psychological Empowerment

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Abstract

Problem Statement: The most important characteristic of today’s organizations is too much change. The demand of organizations to fulfill objectives within dynamic environmental aspects has required strong leadership. Organizations’ accommodation to changes, generating new ideas, adapting these ideas to organizations, and also the individual and intellectual development of employees have revealed the transformational leadership concept. Transformational leaders empower participants independently from supervision and control of leadership; they create an environment free from punishment, so that participants feel themselves as empowered, and this leads to their behaving in an innovative manner. Transformational leaders empower employees and generate a climate that supports innovation. Research about transformational leadership, psychological empowerment, and innovative climate is generally

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conducted within a business organization, and there are so few studies about these variables within schools.

Purpose of The Study: The purpose of this study is to examine the mediating effect of psychological empowerment on the relationship between transformational leadership and innovative climate.

Method: The survey model was used in this study. 303 teachers working in Eskisehir Central Secondary School participated in this research. However, outlier values were examined, and the values of two participants including improper data sets were deleted; therefore, the number of participants was determined to be 301. Three different scales were used in this research. The validity and reliability of the scales were examined. Mean, standard deviation, Pearson correlation and stepwise regression analysis techniques were used.

Findings: It was found that there was a significant positive relationship between transformational leadership and psychological empowerment. A significant positive relationship was found between psychological empowerment and innovative climate, as well. The stepwise regression analysis showed a significant relationship between transformational leadership and innovative climate. According to the Sobel test results, the relationship between transformational leadership and innovative climate was decreasing but significant (z=2.43, p<0.05). Therefore, it has been determined that psychological empowerment partially mediated the relationship between transformational leadership and innovative climate.

Conclusion and Recommendations: Transformational leadership affects innovative climate both directly and indirectly through psychological empowerment. However, research about psychological empowerment in educational organizations and innovation and creativity at schools is very limited. In relation to this study, the effect of the leadership roles of principals, on the level of the psychological empowerment of teachers on their innovative and creative behaviors, can be examined.

Key Words: Transformational leadership, empowerment, innovation, innovative climate

Introduction

The most important characteristic of today’s organizations is too much change. In order to survive, organizations need to accommodate rapidly changing environmental aspects. The demand of organizations to fulfill objectives within dynamic environmental aspects has required the leadership (Kanungo, 2001). Organizations’ accommodation to changes, generating new ideas, adapting these ideas to organizations, and also individual and intellectual development of employees have revealed the transformational leadership concept. Transformational leadership was
asserted by Burns (1978), and Bass (1985) developed the structure; the dimensions of transformational leadership were designated as idealized influence (charisma), inspirational motivation, intellectual stimulation and individualized support (Bass, 1999; Bass & Avolio, 1993; Bass & Steidlmeier, 1999).

Research about transformational leadership in educational environments has determined three main dimensions of transformational leadership: initiating and identifying a vision, providing for individualized support, and providing for intellectual stimulation (Geijsel, Sleegers, Stoel & Krüger, 2009). Vision is the intellectual picture of a demand and a probable position of an organization in the future. Vision includes a particular mission and detailed objectives (Carlson & Perrewe, 1995). By clarifying long-term vision and objectives of transformational leaders, employees’ intrinsic motivation levels increase, causing them to be more motivated to generate creative solutions for problems (Jung, 2001). Intellectual stimulation includes encouraging participants to question hypothesis, challenge status quo, redefine problems, and utilize imagination, intellectual wonder, and new approaches (Shin & Zhou, 2003). Transformational leaders encourage teachers to question their values, beliefs, and assumptions and improve problem-solving ability by intellectual stimulation (Geijsel et al., 2009). Employees can try reformist approaches, if they are not afraid of being punished for failure. Transformational leaders create an organizational environment to lead to innovation and creativity by intellectual stimulation. Transformational leaders encourage participants to reconsider prior problems and their values and customs (Jung, 2001). Individualized consideration focuses on a participant’s improvement. This includes considering the participants’ needs, developing empathy, supporting attempts and views, and appreciating (Shin & Zhou, 2003). Individualized support and consideration help to recognize and meet the needs and interests of each participant (Geijsel et al., 2009).

Transformational leaders have a positive effect on teachers’ motivation through improving their self-efficacy, self-esteem, and self-confidence (Jung & Sosik, 2002). Transformational leaders rely on the powerful commitment between the leader and participants, and they look for ways to transform participants’ values and self-concepts (Jung, 2001). They empower participants independently from the supervision and control of leaders; they create an environment free from punishment so that participants feel empowered, which in turn leads their behaving in an innovative manner (Jung & Sosik, 2002). Transformational leaders create an environment to lead creativity by stimulation, encouraging participants to reconsider former problems (Jung, 2001). Therefore, transformational leaders empower the employee and create a climate that supports innovation.

Since empowerment is an important subject of administrative and organizational studies, interest in this concept has started to increase (Conger & Kanungo, 1988). As the empowerment concept is complex, various definitions have been described (Quinn & Spreitzer, 1997). Conger and Kanungo (1988) stated that empowerment should be discussed in two respects, as a relational construct and as a motivational construct. Empowerment as a relational construct has been described as sharing power and transferring authority and responsibility (Keedy & Finch, 1994). Conger and Kanungo
Musut Sağnak, Mehmet Kuruöz, Betül Polat & Ayşe Soylu (1988) regarded the definition of empowerment as a relational construct as inadequate and described the concept as an increasing process of the self-efficacy beliefs among organization participants. Thomas and Velthouse (1990) improved this approach and regarded as a multi-faceted structure. Spreitzer (1995) stated that psychological empowerment consists of four cognitive items: meaning, competence, self-determination, and impact. Meaning is described as the value of a task’s goal or objective in terms of individual’s own ideals or standards; and the place in a particular task. Competence or self-efficacy states an individual’s ability to perform a duty or an action and belief about the ownership of a professional. Self-determination represents individual’s ability to choose his or her own actions feeling free about those decisions. Impact is described as the level of affecting the strategic, administrative, and functional aspects of an employee’s task (Avalio, Zhu, Koh, & Bhatia, 2004; Spreitzer, 1995).

Despite that empowerment is a concept that the business world raised, the efforts to empower teachers started simultaneously with employee empowerment. Empowering teachers has been described as giving teachers responsibility, choice, and autonomy (Edwards, Green, & Lyons, 2002; Wan, 2005). The relationship between empowerment and various variables has been investigated in the educational context. To be general, a positive relationship between empowerment and concepts such as commitment, satisfaction, and trust has been determined (Dee, Henkin, & Duemer, 2003; Davis & Wilson, 2000; Rinehart & Short, 1994; Moye, Henkin, & Egley, 2005).

Creativity and innovation are affected by organizational factors (Amabile, Conti, Coon, Lazenby, & Herron, 1996). Since empowered staff act independently from the fear of punishment and have the authority of self-supervision, they display innovative approaches to tasks and problems (Jung & Sosik, 2002). Although creativity and innovation are interchangeable in some contexts, here there is a consensus about their distinct definitions (Scott & Bruce, 1994). Creativity is described as the generation of novel and useful ideas, and innovation is described as the successful implementation of these ideas within an organization (Amabile et al., 1996; Mumford & Gustafson, 1988; Woodman, Sawyer, & Griffin, 1993). An innovative climate is described as the shared perceptions of members about values, politics, procedures, and rules encouraging behaviors and generating new information and implementations (Moolenaar, Daly, & Sleegers, 2010; Trevino, Butterfield, & McCabe, 1998). The innovative climate effects generation of new ideas in organizations and application these successfully (Mumford, Scott, Gaddis, & Strange, 2002). Research about transformational leadership, psychological empowerment, and innovative climate are generally conducted within a business organization and consequently there is so little research about these variables within schools.

The purpose of this study is to examine the mediating effect of psychological empowerment on the relationship between transformational leadership and innovative climate. Through this aim, research problems are as follows:

1. Is there a relationship between transformational leadership, psychological empowerment, and innovative climate?
2. Is there a relationship between psychological empowerment and innovative climate?

3. Does psychological empowerment mediate the relationship between transformational leadership and innovative climate?

Method

Research Design

A correlational research design is used to describe the statistical association between transformational leadership and innovative climate.

Research Sample

The research sample composed of 303 teachers working in Eskisehir Central Secondary School. A random sampling method was used. However, outlier values were examined, and the values of two participants improper to data sets were deleted, and the final number of participants was determined as 301. Out of 301 participants, 197 (65.4%) were female and 104 (34.6%) were male. 18 of the teachers (6%) had 1-5 service years, 75 (24.9%) had 6-10 service years, 75 (24.9%) had 11-15 service years, 59 (19.6%) had 16-20 service years and 74 (24.6%) had 20 or more service years. In terms of age, 36 teachers (12%) were 20-30 years old, 143 teachers (47.5%) were 31-40 years old, 81 teachers (26.9%) were 41-50 years old, and 41 teachers (13.6%) were 51 years old or more. In terms of educational level, 6 teachers (2%) had an associate degree, 262 teachers (87%) had an undergraduate degree, and 33 teachers (11%) had a graduate degree.

Research Instruments

Three different scales were used in this research. The Transformational Leadership Scale, developed by Geijssel et al. (2009), was used with the aim of determining transformational leadership behaviors of school principals within the educational context. The scale contains 15 items in the form of five-point Likert scale and three sub-dimensions, vision building, individualized support, and intellectual stimulation. There are five items for the vision building sub-dimension, four items for the individualized support sub-dimension, and six items for the intellectual stimulation sub-dimension. The psychological Empowerment Scale was developed by Spreitzer (1995). This scale includes four dimensions: meaning, competence, self-determination, and impact and each of these dimensions has three items. These scales have been translated into Turkish by two English teachers and then have been translated into English by two different English teachers. Therefore, Turkish adaptations of the scales were performed. For the innovative climate of schools, the scale developed by Bryk et al. (1999) and used by Moolenaar et al. (2010) in order to designate the innovative climate perceptions of teachers has been used. This scale contains six items and was adapted into Turkish by Sagnak (2012).
Validity and Reliability

The validity of the scales is examined with a confirmatory factor analysis in order to verify the original structure, and the results are presented in Table 1.

Table 1.

<table>
<thead>
<tr>
<th>Goodness of Fit Values</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Scales</th>
<th>$\chi^2$</th>
<th>sd</th>
<th>$P$</th>
<th>$\chi^2$/sd</th>
<th>RMSEA</th>
<th>NFI</th>
<th>CFI</th>
<th>GFI</th>
<th>AGFI</th>
</tr>
</thead>
<tbody>
<tr>
<td>TL</td>
<td>233.11</td>
<td>79</td>
<td>p&lt;.05</td>
<td>2.95</td>
<td>0.080</td>
<td>0.98</td>
<td>0.98</td>
<td>0.90</td>
<td>0.85</td>
</tr>
<tr>
<td>PE</td>
<td>121.49</td>
<td>48</td>
<td>p&lt;.05</td>
<td>2.53</td>
<td>0.069</td>
<td>0.96</td>
<td>0.97</td>
<td>0.94</td>
<td>0.90</td>
</tr>
<tr>
<td>IC</td>
<td>21.72</td>
<td>7</td>
<td>p&lt;.05</td>
<td>3.10</td>
<td>0.091</td>
<td>0.97</td>
<td>0.98</td>
<td>0.97</td>
<td>0.92</td>
</tr>
</tbody>
</table>

Because analysis tests for the suitability of the statistical value are sensitive to sample size, using $\chi^2$/sd values is more appropriate (Hair, Black, Babin, & Anderson, 2010). This value was found as 2.95 for transformational leadership, 2.53 for psychological empowerment, and 3.10 for innovative climate. Byrne (1998) argued that if it is below a 5 value, the model has an acceptable fit (as cited in Doğan & Başokçu, 2010). Table 1 showed that the goodness of fit indexes indicated a good fit or acceptable fit of the proposed model (Schermelleh-Engel, Moosbrugger, & Müller, 2003; Schumacker & Lomax, 2004; Yılmaz & Çelik, 2009), and that scales have structural validity. The scales’ reliability levels were determined as .94 for transformational leadership, .81 for psychological empowerment, and .78 for innovative climate.

Data Analysis

In accordance with the purpose of this study, the mediating role of psychological environment for the relationship between transformational leadership and innovative climate has been tested through following the process, which was recommended by Baron and Kenny (1986). According to these scientists, the independent variable must be related to the mediating variable and dependent variable. Further, the mediating variable must be related to the dependent variable with the independent variable controlled in the model. If the relationship between the independent variable and the dependent variable is not significant when controlling for the mediator variable, full mediation is present. If the relationship between the independent variable and the dependent variable is reduced but significant in the last step, partial mediation is present. Mean, standard deviation, Pearson correlation, and stepwise regression analysis techniques were used.

Results

Mean, standard deviation, and correlation between transformational leadership, psychological empowerment, and innovative climate have been given in Table 2.
As it has been seen in Table 2, for transformational leadership the mean is $\bar{X}=49.59$; for psychological empowerment it is $\bar{X}=49.28$; and for innovative climate it is $\bar{X}=21.84$. There was a significant positive relationship between transformational leadership and psychological empowerment ($r=.16; p<0.01$). A significant positive relationship was found between transformational leadership and innovative climate ($r=.19; p<0.01$). Psychological empowerment was significantly related to innovative climate ($r=.27; p<0.01$).

Table 3.
Regression Analysis Results

<table>
<thead>
<tr>
<th>Test Steps</th>
<th>$B$</th>
<th>$\beta$</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1. Predictor: Transformational Leadership Mediator: Psychological Empowerment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R= 0.16</td>
<td>R²= 0.02</td>
<td>0.07</td>
<td>0.16</td>
</tr>
<tr>
<td>F=8.76</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Step 2. Predictor: Transformational Leadership Outcome: Innovative Climate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R= 0.19</td>
<td>R²= 0.03</td>
<td>0.06</td>
<td>0.19</td>
</tr>
<tr>
<td>F=11.56</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 3. Predictor: Transformational Leadership Mediator: Psychological Empowerment Outcome: Innovative Climate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R= 0.31</td>
<td>R²= 0.09</td>
<td>0.04</td>
<td>0.15</td>
</tr>
<tr>
<td>F= 15.90</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.18</td>
<td>0.24</td>
</tr>
<tr>
<td>*p&lt;0.01</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 3 indicated that transformational leadership is significantly related to psychological empowerment ($\beta=0.16$, $p<0.01$) and innovative climate ($\beta=0.19$, $p<0.01$) (step 1 and 2). The results (step 3) indicated that there was a significant relationship between transformational leadership and innovative climate ($\beta=0.15$, $p<0.01$). Although this relationship decreases, it is still at a significant level. By the Sobel test results, the decrease was found to be is significant ($z=2.43$, $p<0.05$). Therefore, it has been determined that psychological empowerment partially mediates the relationship between transformational leadership and innovative climate.

Discussion and Conclusions

The purpose of this study was to examine the mediating effect of psychological empowerment on the relationship between transformational leadership and innovative climate. The results showed that transformational leadership is a significant predictor of psychological empowerment and innovative climate in schools. Accordingly, it is reasonable to say that as the transformational leadership behaviors of the principal increase, psychological empowerment, and in turn, innovative climate will increase. It has been found that psychological empowerment partially mediates the relationship between transformational leadership and innovative climate. These conclusions are similar to most research results discussed below.

Transformational leaders empower their employees in order to let them perform independently from supervision and control. Employees feel empowered in the environment created by transformational leaders; Jung and Sosik (2002) argued that transformational leadership has a positive relationship with group cohesiveness and group efficacy. Krishnan (2012) found that empowerment plays a mediator role on the relationship between the meaning of life and well-being. Avolio et al. (2004) showed that psychological empowerment plays a mediator role on the relationship between transformational leadership and organizational commitment.

Leadership is one of the basic factors affecting innovation and creativity in organizations (Zhou & George, 2003). If relations are not based on status quo, employees have the opportunity to choose and take risks; it has been asserted that they display creative behaviors (Tierney, Farmer, & Graen, 1999). Research suggested that transformational leaders positively affect organizational innovation and creativity (Gumusluoglu & Ilsev, 2007; Jung, Chow, & Wu, 2003). Mumford et al. (2002) stated that an innovative climate has a powerful effect on the innovative and creative behaviors of its member. As an innovative climate encourages its members to take risks, it does not punish failures and supplies autonomy for the members (Jung et al., 2003).

Schools cannot be unconcerned with the rapid changes of today’s world. Principals take on the most critical role of schools’ functioning in accordance with the characteristics of information age. The leadership behaviors of principals are the most important factor in the environmental conditions required for innovation and creativity. One of the most effective leadership approaches to this era is...
transformational leadership, and therefore it is one the most studied approaches. Transformational leaders give employees a sense of community and encourage them to try new things and take risks. Thus, the conditions necessary for members’ psychological empowerment are met. If employees regard work as meaning, believe they have the ability to perform effectively, and feel they have the power to choose and affect outcomes, an innovative climate should be possible. This study confirmed these theoretical statements.

This study showed that research in educational environments will draw conclusions similar to studies conducted in the business world. However, there is still so little research about psychological empowerment in educational organizations and their innovation and creativity at schools. Because of this study, the effect of the principals’ leadership roles, on the level of teachers’ psychological empowerment can be examined.

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Dönüşümcü Liderlik ve Yenilikçi İklim: Psikolojik Güçlendirmenin Aracılık Etkisinin İncelenmesi

Atıf:
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Özet
güçlendirir ve yeniliği destekleyen bir iklim oluştururlar. Dönüşümü liderlik, psikolojik güçlendirme ve yenilikçi iklim araştırmalarının genellikle işletme örgütlерinde yapılığı, okullarda bu değişkenlerle ilgili araştırmaların oldukça sınırlı olduğu söylenebilir.


Araştırmanın Bulguları: Dönüşümü liderlik ile psikolojik güçlendirme (r=.16; p<0.01) ve yenilikçi iklim (r=.19; p<0.01) arasında pozitif yönde ve anlamlı ilişki belirlenmiştir. Psikolojik güçlendirmenin yenilikçi iklimi anlamlı düzeyde etkilediği bulunmuştur (r=.27; p<0.01). Araçlık testi sonucunda, dönüşümü liderliğin yenilikçi iklimi anlamlı düzeyde etkilediği (β=0.15, p<0.01) fakat bu ilişkinin azaldığı ancak anlamlı düzeyde olduğu belirlenmiştir. Yapılan Sobel testi sonuçlarına göre de bu azalmanın anlamlı olduğu bulunmuştur (z=2.43, p<0.05). Buna göre, dönüşümü liderlik ile okulun yenilikçi iklimi arasındaki ilişkide psikolojik güçlendirmenin kısmi aracılık özelliği gösterdiği belirlenmiştir.


Anahtar kelimeler: Dönüşümçü liderlik, güçlendirme, yenilik, yenilikçi iklim
Active Listening Strategies of Academically Successful University Students

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Sekvan KUZU²
Bilal YILDIRIM³
Sevilay CANPOLAT⁴

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Abstract

Problem Statement: In formal educational environments, the quality of student listening affects learning considerably. Students who are uninterested in a lesson listen reluctantly, wanting time to pass quickly and the class to end as soon as possible. In such situations, students become passive and, though appearing to be listening, will not use listening strategies that promote productive and permanent learning. By contrast, when students willingly participate in lessons by listening to instructors, asking questions, and holding discussions, they practice active listening that allows them to achieve more productive and more permanent learning.

Purpose of Study: The aim of this study was to identify active listening skills that academically successful university students use in classes and to analyze these students’ opinions on active listening skills.

Methods: This qualitative research involved a case study by which academically successful university students were observed in a classroom environment and their thoughts on active listening skills examined.

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According to the model, participants were evaluated without any intervention by researchers in the classroom environment.

Findings: Findings from observations and interviews were organized under three subheadings: cognitive, affective, and psychomotor-based strategies. Cognitive strategies included paying attention, taking notes, making associations and analogies, asking questions, integrating information, making inferences, getting the main idea, and setting an objective; affective strategies included attending class on time, being motivated, staying calm, and enjoying the lesson; and psychomotor-based strategies included being close to the board, following along with both the head and eyes, making eye contact, generating feedback, sitting up straight, and paying attention to gestures, facial expressions, tone of voice, and stresses in speech.

Conclusion and Recommendations: According to data collected during the study, academically successful university students used different cognitive, affective, and psychomotor-based strategies in practicing active listening.

Keywords: Active listening, university students, academic success, listening strategy

Introduction

The skill of listening is the first linguistic skill that humans acquire. In fact, fetuses hear voices outside the womb as early as the fifth month of gestation (Doğan, 2008). Perhaps given its primary placement among linguistic skills, the many definitions of listening differ. In general, however, listening comprises sending a message (i.e., transmission), hearing that message, and making sense of it (Özbay, 2005). Listening does not mean watching the other party passively, but making an effort to receive and interpret messages in order to fully achieve communication (Devito, 1995; Omololu, 1984; Umagan, 2007).

Able to become both individuals and social actors by using linguistic skills, humans hear, perceive, recognize, meet others, think, and understand by listening. As the most important means of learning in every period of human development and growth, listening has been acknowledged as fundamental among linguistic skills (Karadüz, 2010). By extension, since individuals make sense of all kinds of sounds that they hear throughout life and store them in their memory as an important part of their accumulated experiences and knowledge, listening is also fundamental in learning.

Listening’s role in all of an individual’s experiences with learning his or her native language expands over time. On average, approximately half of all human activities involve listening and 45% of time used for communication involves listening, as shown by research conducted by Lyman Steal at the University of Minnesota (Yıldız, Okur, Arı, &Yılmaz, 2003). Furthermore, by listening to others, people meet many of their
cognitive, affective, and social requirements such as learning, obtaining proper nutrition, communicating, speaking, and showing emotion. At the same time, a great deal of both formal and informal learning is achieved by listening, and according to Hunsaker (1990), 80% of what people know is obtained by listening. Given the abundance of teachers who use lecture-based teaching methods in schools, the time that students spend listening increases all the more. For some students, nearly 83% of what they learn is learned by listening (Özbay, 2005; Petress, 1999). In effect, the above figures underscore the importance of listening training both at school and at home.

The acts of listening that an individual performs to meet cognitive, affective, and social requirements throughout the processes of formal and informal education are multidimensional. Listening is an activity that individuals engage in cognitive, affective, and psychomotor-based ways and, defined as a linguistic skill, should be carried out strategically and sophisticatedly in any mode of communication. In listening, individuals are not passive receivers who remain silent and submissive while information is communicated, but active receivers who present their thoughts and emotions in ways both verbal and nonverbal. Listening means understanding thoughts expressed in speech, organizing and evaluating them, determining their interrelationships, and selecting ones worth remembering (Ergin & Birol, 2005).

In formal educational environments, the quality of student listening affects learning considerably. Students who are uninterested in a lesson listen reluctantly, wanting time to pass quickly and the class to end as soon as possible. In such situations, students become passive and, though appearing to be listening, will not use listening strategies that promote productive and permanent learning. By contrast, when students willingly participate in lessons by listening to instructors, asking questions, and holding discussions, they practice active listening that allows them to achieve more productive and more permanent learning.

In classroom environments, the ideal form of listening is active listening. Unlike passive listeners who seek solely to retain ideas in their minds, active listeners both produce thoughts and share those thoughts by expressing them in verbal and nonverbal ways. The observable external signs of active listening include physically displaying emotion, cooperating with members of the group of listeners, physically expressing approval or disapproval of what is said, exhibiting behaviors directed toward listening, asking questions about what is being said, and contributing appropriate explanations and comments (Brent & Anderson, 1993; see also Akyol, 2012).

As part of their learning experiences throughout the processes of education, each individual develops listening strategies that are cognitive, psychomotor-based, or affective in nature. While implementing cognitive listening strategies, individuals compare and classify information in their minds, make inferences, formulize what they have learned, generate associations, reason, take notes, and make generalizations (Akyol, 2006), all for the purpose of achieving more effective and permanent learning. At the same time, listening strategies that reflect listener emotions expressed via body
language while listening, including facial expressions, gestures, and sitting position, significantly demonstrate how listeners feel in the environment and what stance they take on what is said. By turns, listeners sympathize, empathize, and may even feel excited, scared, or stressed. Since all of these states influence an individual’s listening reflexes and habits, their effective and strategic use of these actions can help to more fully realize communication, learning, thinking, hearing, and telling. Furthermore, stating that auxiliary strategies need to be used to facilitate understanding, Akyol (2006) has posited that active listeners make guesses prior to listening and continuously renew their guesses while listening according to new information and clues provided by the speaker. Another general strategy is determining the main idea, in which listeners regularly ask themselves what the point of the information provided is.

In the light of the above, we hypothesized that the development of listening skills among university students contributes to their academic success and improves their social skills. To test our hypothesis, we identified strategies used by academically successful university students by examining what kind of listeners they were in a classroom environment, as well as analyzed these students’ opinions on active listening skills. In effect, the study has sought to contribute to the planning and implementation of practices that can develop students’ listening skills.

Method

Research Design

This qualitative research involved a case study by which academically successful university students were observed in a classroom environment and their thoughts on active listening skills examined. According to the model, participants were evaluated without any intervention by researchers in the classroom environment (Karasar, 2000). Since making generalizations from numbers is generally beyond qualitative research, generalization was not the goal of the study, but instead a descriptive portrayal regarding the problem.

Sample

The sample was consisted of eight academically successful students selected via criterion sampling from all students in several undergraduate programs within the Faculty of Education at Mustafa Kemal University during the 2012-2013 academic year. Selection was performed based on the information gathered by faculty members who attended the students’ classes and demographics. Four participants were women and four were men. It is thought that such a sample is sufficient for qualitative researches (Yıldırım & Şimşek, 2011).
Instruments and Procedure

During data collection, participants were first observed in a classroom environment, each during a different period, and data collected. They were then asked eight questions addressing basic strategies that they used in listening and participated in semi-structured interviews, all audio recorded, concerning their thoughts on active listening. For analysis, the sound recordings were transcribed for a total of 40 pages of text.

Data Analysis

Content analysis of the qualitative data was performed according to procedures described in the literature (Strauss & Corbin, 1990; Yıldırım & Şimşek, 2011). The researchers first took notes about probable codes and categories by reading data obtained via both observations and interviews. For coding—that is, the process of naming meaningful pieces of data—students’ statements, concepts used in the field, and statements of researchers and experts were used as codes. The researchers continuously exchanged information with each other and experts regarding these codes and possible categories.

After the researchers completed the coding process, one researcher prepared a list of categories under which codes were placed. This list was given to the other researchers, who confirmed that the codes derived from the categories. The data of two students were coded independently by the researchers, and coherence among them was assessed to determine the consistency among the researchers given that the researchers who performed data collection also performed data analysis. Coherence among the codings was found to be 84.12% at the end of the examination, indicating that the researchers’ reliability was high regarding data coding. Validity was ensured by the researchers’ being continuously in contact while coding, examining the codings determined and themes found from one researcher to the next in terms of coherence with the data, and including direct quotations from participants in the findings.

Ultimately, common active listening strategies used by participants were pinpointed during content analysis and have been presented as follows. For confidentiality, participants’ names have been replaced with numbers.

Results

Findings concerning the results of observations and interviews are below presented under three subheadings—namely, cognitive, affective, and psychomotor-based strategies—under the dual primary headings of observation and interview data.
Findings Concerning Cognitive Strategies

Active listening is a cognitive process involving an array of intellectual behaviors. According to data from interviews, participating students reported that, while listening to their instructors, they tend to use cognitive strategies such as paying attention (n = 8), taking notes (n = 8), making associations and analogies (n = 7), asking questions (n = 7), integrating information and making inferences (n = 6), seeking the main idea (n = 4), and setting objectives for listening (n = 3).

For participants, the strategy of paying attention while listening facilitates more productive lessons and should be used frequently while listening, as the following comments exemplify:

I clear my mind and my intellect and pay attention to the instructor. If I do not want to listen, then I think about something else (Student 1).

My mind is disorganized sometimes, so I can’t listen to my instructor effectively. However, when I’m paying attention to the class, I listen to the subject carefully (Student 2).

I think attention and focus are important in listening to instructors. Focusing attention is important because you don’t want to focus on two different things at the same time. Otherwise, it’s impossible for me to listen to instructors (Student 3).

When there’s a subject that particularly attracts my attention or if examples are given, that enables me to listen more actively (Student 4).

To pay attention in class while listening, students reported needing to rid their minds of thoughts unrelated to the lesson at hand. Yet, they also admitted struggling to focus on lessons and being unable to fully participate in listening for different reasons, including being tired, being sleepy in their earliest classes, thinking about other classes, daydreaming, the instructor’s failed classroom management, and even being prejudiced against the class.

Students also frequently employed the strategy of taking notes while listening to achieve more effective and more permanent learning. In note taking, they reported seeking to learn more effectively by carefully recording ideas they deem significant and classifying what they learn. As an active listening behavior, taking notes was generally described by students to afford more permanent knowledge through the use of writing. During interviews, students detailed their strategic use of taking notes, as the following represent:

While taking notes, I do not write all of the things that the instructor says, but main titles, in the form of an outline (Student 3).

I try to take notes of topics in ways that make sense to me, not everything that speaker talk about (Student 5).
I take notes in class. I usually study with them for exams (Student 6).

If I have to take notes, I listen first, then try to take notes in the form of brief clues from what I’ve understood (Student 8).

I listen carefully and take notes of points that the instructor says are important (Student 1).

I do not write down what I listen to in the exact same way; I interpret it and write it down in my own words (Student 4).

As shown, a teacher’s instructions for students to take notes clearly affect students. Expected from students in the strategy of taking notes is that they take notes of points that they deem significant and in their own words. With this practice, students can ensure that the information is repeatable and more easily remembered. As participants’ answers reveal, students can develop note taking strategies that accommodate their instructors’ emphasis upon certain points. Among others, taking notes in a notebook, organizing notes, and having ample space for writing are common tactics used while taking notes that can make the most of active listening.

Students interviewed reported establishing connections among topics that they have studied recently or further in the past by providing examples. Such behavior suggests that students use the listening strategy of making associations and analogies, as participants explained in their own words:

I participate in class by giving examples of the subjects that our instructor talks about (Student 7).

I try to actively participate in class, share my opinions, and ask about points that I do not understand during class (Student 8).

I try to understand the essence of the main idea of the things that the instructor talks about and look for examples related to it. I repeat all of this in my mind (Student 5).

If a subject has my interest and if I can relate it to my own life, then I can listen actively and attentively (Student 2).

Participating students stated that using the strategy of asking questions is effective both in their learning of points that they do not understand and in maintaining attention while listening to instructors, as what follows clarifies:

While an instructor is explaining, I definitely ask questions about points that I don’t understand (Student 4).

I try to actively participate in the class, share my opinions, and ask about points that I don’t understand during class (Student 8).
Results indicate that students also listen strategically by integrating information and making inferences, meaning that they try to create meaning of what they have listened to. Students who use these strategies are not passive receivers in listening, but evaluators of meanings that they create via active intellectual participation. Since the process of listening is a process of reasoning, active listeners question what they listen to, make inferences, and ultimately create meaning. Participants’ comments concerning the strategy of integrating information and making inferences appear below:

I compare the subject being related to those I already know. I deliberate over concepts, associate, and think critically (Student 3).

I compare what I know with what I hear, and I make inferences (Student 4).

I compare what I’m listening to with information that I’ve learned before. I ask questions at points when there is inconsistency, and I criticize (Student 5).

Seeking the main idea also ranks among strategies articulated by the participating students, who emphasized that the tactic wards off distraction from lessons and focuses attention on instructors. In general, they additionally agreed that the strategy plays a positive role in learning:

I try to understand the essence of the main idea of the things that the instructor talks about and look for examples related to it. I repeat all of this in my mind (Student 4).

I feel the need to listen to the instructor because I want to find the main idea (Student 7).

I try to discern the logic of the lesson, and I believe that learning is more permanent this way (Student 8).

In any case, however, interests and needs determine the process of listening as well. When individuals listen for what they need, they have set objectives and listen selectively. The following comments showcase the strategy of setting listening objectives:

For me to listen actively, I need to need that information. It must excite me (Student 5).

I try to listen for what will be beneficial for me in exams in the future (Student 7).

**Findings Concerning Affective Strategies**

To be effective in learning environments, learning must be addressed in all of its dimensions, one of which encompasses the affective properties, including emotions, that individuals experience while learning. Among all active learning strategies, these are known as affective strategies.
When learners exhibit positive affective behaviors while listening, active listening is realized in a more careful and motivated way. Researchers have shown that individuals who are motivated and eager to listen are more active while listening, whereas individuals who feel pressured by having to listen or who are shy became passive—in other words, less successful learners (Karadüz, 2010). Students interviewed stated that when they listen willingly, they enjoy learning, yet when they feel pressured and listen in fear, they cannot learn effectively or permanently. According to data gathered from the interviews in the present study, students demonstrated affective behaviors such as attending class on time (n = 7), being motivated (n = 6), being calm (n = 5), enjoying the lesson (n = 5), and being bored (n = 3). Some students explained how they use affective listening strategies, as shown below:

If a subject doesn’t appeal to me, even if I listen, I won’t understand anything (Student 1).

When subjects that I don’t like are discussed in class, I find it hard to listen to my instructor (Student 8).

I become motivated and more eager in subjects that interest me, and I enjoy listening to those instructors (Student 7).

I’m usually calm, but if I’m listening inattentively, then I get nervous with the fear that the instructor may ask me a question (Student 1).

If the instructor has a stern attitude, then I become nervous. If the subject appeals to me, then I become eager (Student 4).

I get agitated when I feel that I don’t understand (Student 2).

I definitely get to classes 5 to 10 minutes before the instructor does (Student 6).

I don’t think that I can concentrate on the lesson if I come to class late (Student 5).

Students reported being unable to develop any strategy in terms of affectivity when faced with authoritarian and stern attitudes, which stifle authentic attitudes and propagate pressure. In these cases, they prefer remaining silent in a panicked, anxious state void of self-confidence. By contrast, they reported listening willingly and happily and even feeling excited by being more comfortable and allowed to feel authentic, daydream, be in the moment, and participate in the process of listening with rich, genuine emotion. At the same time, students who attend class on time stated that doing so allows them to prepare themselves affectively prior to listening, to not miss the beginning of the lesson, and to concentrate better.
Findings Concerning Psychomotor-Based Strategies

Among activities of active listening, psychomotor-based strategies are crucial. Students’ interest in, desire for, and attention toward lessons can easily fluctuate according to the success of psychomotor strategies. According to data collected in the present study’s interviews, students indicating using psychomotor-based behaviors such as being close to the board \((n = 7)\), following along with both their head and eyes \((n = 6)\), making eye contact \((n = 6)\), generating feedback \((n = 6)\), sitting up straight \((n = 6)\), paying attention to gestures, facial expressions, tone of voice, and stresses in speech \((n = 6)\), and doing something else \((n = 4)\). Some students expressed their thoughts on psychomotor-based strategies in the following comments:

While listening, I generally prefer looking at the face of the person in front of me, taking notes while listening to them, and asking about points that I wonder about (Student 2).

I direct all of my attention to the person talking by looking into the instructor’s eyes, by nodding, by using body language, and by supporting points with my eyes and facial expressions (Student 6).

Gestures, facial expressions, and tone of voice are all required to attract students’ attention, and it’s understood that instructors emphasize important points to pay attention to (Student 3).

I pay attention to instructors’ stresses, use of repetition, and tone of voice when they’re explaining the subject (Student 8).

If there’s too much noise in the class, I prefer sitting in the front row so that I can listen to the instructor (Student 8).

I usually try to sit alone, because I don’t like talking to classmates next to me during class that much (Student 5).

When I am bored with the class, I spin a pen in my hand (Student 4).

While listening to instructors, I don’t do anything else and sit up straight at my desk (Student 3).

In general, students try to make eye contact with their instructors while listening. Eye contact—the basis of communication that makes other speakers feel that they are being listened to—is pivotal in listening training as well. Students who make eye contact with instructors can also follow their instructors’ gestures and facial expressions while listening. They can also interpret their instructors by effectively understanding body language, gestures and facial expressions.

By the same token, another function of eye contact is feedback. Students can give instructors feedback about the subjects being discussed in terms of whether they
understand by making eye contact with instructors, often supported by movements of
the head. With this feedback, instructors can make necessary corrections.

Another point mentioned by students during interviews concerned sitting up
straight. In fact, the method of listening to instructors by sitting up straight and not
doing anything else accepted as correct in the Turkish education system was also
applied by students who participated in this study. Yet, it should be remembered that
students in this state are nevertheless passive listeners. Students should also be
provided with the opportunity to participate in class during activities so that
knowledge communicated can be learned more effectively and permanently.

Sitting close to the board was another tactic mentioned during interviews.
Participating students stated that when they sat close to the board, they were closer to
the instructor and noise did not hinder their listening. They also reported that they
could not listen to instructors from the furthest rows because there was too much
noise, which some students attributed to the instructor’s failed classroom
management.

Some participants also highlighted negative listening tactics. Doing something else
while listening facilitated their distraction, for example. Whether students exhibit
these behaviors constantly or rarely is important feedback for instructors, for students
who demonstrate these behaviors typically suggest that they have become bored with
the class. From these messages, instructor can make opportunities for interventions in
the course of the class. At the same time, students who exhibit this behavior constantly
have generally lost interest in the class and need special attention.

Results of Observation

As shown in Table 1, students used the cognitive strategies of paying attention,
taking notes, making associations and analogies, and asking questions while listening;
and the affective strategies of attending class on time and being calm while listening
to the instructor, as well as were interested in, eager about, and motivated to
understand the subject, yet after a certain amount of time, especially in the last 10 to
15 minutes of the class, got bored. Furthermore, among psychomotor-based strategies,
students used positive ones such as sitting close to the board, following the instructor
with both the head and eyes, making eye contact with the instructor, and sitting up
straight, as well as ones that showed they were bored with the class—namely, by doing
other things.
Table 1.

Findings from the Results of Observations

<table>
<thead>
<tr>
<th>Themes Codes</th>
<th>f</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cognitive</strong></td>
<td></td>
</tr>
<tr>
<td>Paying attention</td>
<td>8</td>
</tr>
<tr>
<td>Taking notes</td>
<td>7</td>
</tr>
<tr>
<td>Making associations and analogies</td>
<td>5</td>
</tr>
<tr>
<td>Asking questions</td>
<td>4</td>
</tr>
<tr>
<td><strong>Affective</strong></td>
<td></td>
</tr>
<tr>
<td>Attending class on time</td>
<td>7</td>
</tr>
<tr>
<td>Being calm</td>
<td>7</td>
</tr>
<tr>
<td>Being motivated</td>
<td>6</td>
</tr>
<tr>
<td>Being bored</td>
<td>3</td>
</tr>
<tr>
<td><strong>Psychomotor</strong></td>
<td></td>
</tr>
<tr>
<td>Being close to the board</td>
<td>7</td>
</tr>
<tr>
<td>Following along with the head and eyes</td>
<td>5</td>
</tr>
<tr>
<td>Making eye contact</td>
<td>5</td>
</tr>
<tr>
<td>Sitting up straight</td>
<td>5</td>
</tr>
<tr>
<td>Doing something else</td>
<td>2</td>
</tr>
</tbody>
</table>

Below are statements purporting participants’ use of cognitive, affective, and psychomotor-based strategies observed in the classroom environment:

*The student started to write down what the instructor said in his notebook from the moment the class started* (Student 1, coded as taking notes).

*The student asked “What is the difference between shaping and threshold method?” (Student 2, coded as asking questions).*

*There were 2 minutes before the class started. The student came in, sat at the second desk in middle row, and took out pen and notebook* (Student 3, coded as attending class on time).
The student got distracted, looked at her watch now and then, and started to turn to her left and right (Student 4, coded as being bored and doing something else).

The student listened to the instructor attentively, made eye contact, followed the instructor, and approved what the instructor said by nodding (Student 5, coded as making eye contact and following along with the head and eyes).

Discussion and Conclusion

A listening culture in which students are made passive has persisted for years in primary education. As part of this culture, a preference for students who listen to the teacher quietly, sit still, and do not make noise in learning environments has partially rendered students unable to develop linguistic skills such as listening and to self-actualize. Yet, the process of listening is a multidimensional one in which individuals participate with nonverbal and verbal language, thoughts, and emotions. As they do in their social lives, learners should use linguistic skills in formal learning environments and be able to actualize their linguistic skills without feeling pressured. The pressures of failing and of being unable to express ideas well can stifle their natural behaviors and promote their developing into individuals deprived of basic skills.

Karadüz (2010) has found that students do not use listening strategies that are too multifarious. Using limited stimulation in learning environments, being rendered passive in traditional education systems, and being unable to develop sufficient strategies can cause them to become individuals who only take notes, listen to the instructor quietly, are shy about objecting, and cannot develop alternative ideas (Karadüz, 2010). Other than the verbal channel, by which students can express themselves in multiple learning activities, listening environments should also allow other senses to be used as well. Though most classroom communication revolves around instructor’s speeches, the four sensory channels other than listening—namely, sight, touch, taste, and smell—can facilitate or hinder learning in normal classrooms. As such, new forms of stimulation can be provided by shifting sensory channels, though realizing such changes requires students to be primed for those sensory experiences. If done well, then the approach can refocus students’ attention back to the instructor’s presentation (Kenneth, 1999).

To obtain correct and complete information in listening environments, listeners needs to adopt an attitude of listening in a natural, comfortable way. According to Özbay (2001), instructors can best succeed in communicative listening training by offering opportunities that make it possible for students to learn via experience.

Since students listen in ways that are more directed toward succeeding on examinations, they adopt a pragmatic attitude while taking notes in classes. Instead of seeing learning as a natural need, they prefer listening for information that they
suspect will be useful on examinations. However, the popularity of such a strategy implies that classes do not accommodate listening processes directed toward communication, but a culture in which selective listening predominates. Students cannot listen to instructors in such environments, because they are distracted when they are uninterested. However, to be able to communicate, students need to develop their skills of extraordinary view and critical listening (Stone, 1994).

In any listening environment, many strategies are available such as setting objectives, preparing oneself mentally, guessing, using key concepts, and taking notes that determine the type, method, and technique of listening (Güneş, 2007; Worthington, 2008) and whether it is effective.

According to data obtained from this study, academically successful university students used different cognitive, affective, and psychomotor-based strategies to achieve active listening. Students generally used cognitive strategies such as paying attention, taking notes, making associations and analogies, asking questions, integrating information, making inferences, seeking the main idea, setting objectives; affective strategies such as attending class on time, being motivated, being calm, and enjoying the lesson; and psychomotor-based strategies such as being close to the board, following along with both the head and eyes, making eye contact, generating feedback, sitting up straight, and paying attention to gestures, facial expressions, tone of voice, and stresses in speech. At the same time, among negative psychomotor-based strategies, students expressed being bored and doing other things while listening. In this sense, several factors contribute to active listening in listening-oriented learning environments, including how eager students are to learn the lesson, to what extent they pay attention to the lesson, their preparedness, their mood, whether they like the subject, whether they attend class on time, the desk that they sit at, and its surroundings.

In sum, active listening is a multidimensional process that involves various cognitive, affective, and psychomotor-based elements. Identifying and making use of these elements in natural, democratic learning environments supports student learning and their acquisition of diverse social skills. Executing linguistic skills not with an information-oriented but skill-oriented learning culture contributes to individuals’ development of emotions and thoughts, as well as of skills of understanding and explaining. Learning–teaching cultures in which students are kept in a passive state prevent them from exhibiting these skills. Individuals held in check exhibit affective characteristics of being passive and lacking confidence in their knowledge and ideas. Learning environments should thus be designed according to learning approaches in which social skills are developed, students are active, and learning tasks are devised according to students’ interests and abilities. It is important that each student develops the strategy of listening during primary education and can use many types of listening to that end, as well as that activities directed toward skills of listening are sufficiently included in learning environments. Accordingly, listening environments in which individuals are sufficiently motivated and stimulated need to be designed within learning environments. These environments should ensure that
along with verbal stimulations, factors that appeal to other sensory channels are accommodated in order to maintain and even improve students’ attentiveness.

References


Akademik Yönden Başarılı Üniversite Öğrencilerinin Aktif Dinleme Stratejilerinin Değerlendirilmesi

Atıf:
Doi: 10.14689/ejer.2015.60.10

Özet


Araştırmanın Amacı: Bu araştırmanın amacı akademik yönden başarılı üniversite öğrencilerinin derslerde kullandıkları aktif dinleme becerilerinin tanımlanması ve bu öğrencilerin aktif dinleme becerisi üzerine görüşlerini incelemektir.

Araştırmanın Yöntemi: Çalışma, akademik yönden başarılı üniversite öğrencilerinin sınıflarda gözlenip yine aynı öğrencilerin aktif dinleme becerisi üzerine görüşlerinin incelendiği taraftar modelinde nitel bir araştırmadır. Tarama modelinde, araştırmaya katılanlar içinde bulundukları koşullara herhangi bir müdahale yapılmadan oldukları gibi değerlendirilir.

Bulgular: Araştırmanın elde edilen gözlem ve görüşme sonuçlarına ilişkin bulgular gözlem ve görüşme ana başlıkları altında bilişsel, duyuşsal, ve devinişsel stratejiler olmak üzere üç alt başlık altında sunulmuştur. Aktif dinleme birçok zihinsel davranışları içeren birliksel bir süreçtir. Yapılan görüşmelerde elde edilen verilere göre öğrenciler ders dinlenen daha çok dikkatini verme (n = 8), not tutma (n = 8), ilişkilendirme ve benzetim (n = 7), soru sorma (n = 7), birleştirme ve çıkarma уровне (n = 6), ana fikri yakalama (n = 4), amaç belirleme (n = 3) gibi bilişsel stratejiler kullandıklarını ifade etmişlerdir. Yapılan görüşmelerde elde edilen verilere göre öğrenciler daha çok derse zamanında katılım (n = 7), motivasyon (n = 6), sakin olma (n = 5), beğenme (n = 5), sıkışma (n = 3) gibi duyuşsal davranışları ifade etmişlerdir.
Yapılan görüşmelerde elde edilen verilere göre öğrenciler daha çok tahtaya yakın olma ($n=7$), baş ve gözle takip etme ($n=6$), göz teması kurma ($n=6$), geri bildirim ($n=6$), dik oturma ($n=6$), jest, mimik, ses tonu ve vurgulara dikkat ($n=6$), başka şeyle ilgilenme ($n=4$) gibi devinişsel davranışlar ifade etmişlerdir.

Yapılan gözlem sonucunda öğrencilerin bilişsel stratejilerden sırasıyla dikkatini verme, not tutma, ilişkilendirme ve benzetim, soru sorma stratejilerini kullandıkları görülmüştür.

Sonuç ve Öneriler: Araştırmadan elde edilen verilere göre akademik yönden başarılı üniversite öğrencilerinin aktif dinlemeye farklı bilişsel, duyuşsal ve devinişsel stratejiler kullandılar. Öğrencilerin genelde dikkatini verme, not tutma, ilişkilendirme ve benzetim, soru sorma, birleştirme, çıkarımda bulunma, ana fikri yakalama, amaç belirleme gibi bilişsel stratejiler; derse zamanında katılım, motivasyon, sakin olma, beğenme gibi duyuşsal stratejiler; tahtaya yakın olma, baş ve gözle takip etme, göz teması kurma, geri bildirim, dik oturma, jest, mimik, ses tonu ve vurgulara dikkat etme gibi devinişsel stratejileri kullandıkları bulunmuştur.

Öğrenme ortamları, sosyal becerilerin geliştirildiği, öğrencilerin aktif olduğu, ilgi ve yeteneklere göre öğrenme görevlerinin verildiği öğrenme yaklaşımına göre tasarlanmalıdır. Öğrenme ortamlarında dinleme becerisine yönelik etkinliklere yeterince yer verilerek her öğrencinin temel eğitimden itibaren dinleme stratejisini geliştirmesi, dinlemenin birçok çeşidiniamacına yönelik olarak kullanabilmesi önemlidir.

Anahtar kelimeler: Aktif dinleme, üniversite öğrencileri, akademik başarı, strateji
The Regression Level of Constructivist Learning Environment Characteristics on Classroom Environment Characteristics Supporting Critical Thinking

Nihal TUNCA

Suggested Citation:

Abstract

Problem Statement: One of the main aims of constructivism is to improve critical thinking skills/tendencies via experiences. In this sense, it is believed that the more the constructivist-learning environment is improved, the more the appropriateness of supporting critical thinking is improved. However, no study has yet statistically tested this belief.

Purpose of the Study: The aim of this study is to determine the regression level of constructivist learning environment characteristics on classroom environment characteristics supporting critical thinking according to the teachers participating in the study.

Method: The study is a regression study at relational screening model. The sample of the study consists of 351 teachers working at primary and secondary schools in Kutahya city center and surrounding villages. The Constructivist Learning Environments Questionnaire and Critical Thinking Supportive Teachers’ Behaviors Inventory were used as data collection tools. During the data analysis, the Pearson correlation test was conducted to determine the relation between the two variables. To determine the regression level of constructivist learning environment characteristics on classroom environment characteristics supporting critical thinking, multiple regression analysis was conducted.

Findings and Results: The results of the regression analysis revealed that constructivist learning environment characteristics explain the 44% of the total variance of classroom environment characteristics supporting Open Mindedness; 50% of the total variance of classroom environment characteristics supporting High-Level Questioning; 40% of the total

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variance of classroom environment characteristics supporting Questioning of the Accuracy and Reliability of Information; 47% of the total variance of classroom environment characteristics supporting Seeking Causes and Evidence; 48% of the total variance of classroom environment characteristics supporting Openness.

**Conclusion and Recommendations:** In general, a medium-level, positive and significant relation was found between the sub-dimensions of the Constructivist Learning Environments Questionnaire and the sub-dimensions of the Critical Thinking Supportive Teachers’ Behaviors Inventory. Furthermore, it was found that the constructivist learning environment characteristics could explain nearly half of the total variance in classroom environment characteristics supporting critical thinking. These results show that the belief expressed in the existing literature that aligning the classroom environment with constructivist learning environment characteristics is also effective in supporting critical thinking is true to a great extent.

**Keywords:** Constructivism, critical thinking, learning environment, constructivist learning environments, classroom environment supporting critical thinking.

**Introduction**

Constructivism, which is defined as the philosophical belief of individuals related to making sense of reality (Fosnot, 1996, p. 19), comprises epistemological and pedagogical tenets (doctrine) (Boghossian, 2012). In other words, it is a philosophical approach and learning theory (Wilson, 1996; Duffy & Cunningham, 1996, p. 184). According to the constructivist learning theory, learning is defined as an active process in which the individual constructs knowledge on her/his own by relating the obtained knowledge as a result of interacting with the environment and new knowledge (Driscoll, 2005). Literature that considers the constructivist viewpoint on learning emphasizes that actualizing constructivism in a real sense depends on the created learning environment. Fraser (1998) defines learning environment as a social, psychological and pedagogical context that affects the attitude and success of students and where learning occurs. On the other hand, a constructivist learning environment (CLE) is defined as an environment where learners generally support each other’s learning and construct knowledge by using information resources and various tools to solve a problem or to reach their learning goals (Wilson, 1996; Tynjala, 1999). CLE is a student-centered environment (Brooks & Brooks, 1999). When the definitions related to CLE is taken into consideration, it can be stated that CLE is purposeful, contextual, interactive, cooperative, complex, inductive, reflective and active. Cunningham, Duffy and Knuth (1993) determined seven principles which should be adhered to create a constructive learning environment (cited in Honebein, 1998, p. 13). The first principle is that teachers provide experience with the knowledge constructing process, which means making the learners gain experiences on how to construct knowledge. The second is for teachers to appreciate students’
presentations of different points of view and their respect for different points of view. The third principle is to provide real and context-related learning, which means that students use the acquired knowledge in daily life in appropriate contexts. The fourth is to include students’ active participation in the learning process. The fifth involves providing learning with social experiences. The sixth principle is to allow students to express themselves in various ways. The seventh principle is for teachers to increase students’ own awareness of the learning strategies they use to construct knowledge and of problem-solving strategies. The CLE characteristics referred to by the measurement tool used in the present study are Discussions and Interviews, Conceptual Contradictions, Sharing Opinions with Others, Materials and Sources Aiming to Lead to a Conclusion, Reflection and Motivation for the Discovery of Concepts, Meeting the Needs of the Learners and Creating a Meaning and Correlating with the Real Life Situations (Fer & Cirik, 2006). According to Brooks and Brooks (1999), the role of the constructivist teacher is to encourage students to take initiative in subjects, such as by determining their own learning goals, to create an environment promoting critical thinking skills by asking high-level questions and by asking students to construct conflicting hypotheses. Within this line of reasoning, it can be said that CLE develops students’ high level thinking skills such as critical thinking (Terhart, 2003).

Critical thinking is defined as directing beliefs and actions and as a process of conceptualizing, applying, analyzing and evaluating knowledge that is formed as a result of observation, experience, reflection and reasoning (Paul & Scriven, 1987). Today, one of the main aims of education systems is to foster individuals’ critical thinking. Hence, literature on improving individuals’ critical thinking recommends creating classroom environments where this skill is directly thought of or where critical thinking is supported. Also, studies in literature on aiming developing the critical thinking of students stated that teacher attitudes/classroom environment supporting critical thinking is more effective than directly teaching it (Innabi, 2003). Additionally, in the literature it is stated that the environmental context in which students’ thinking skills development is important, and Vygotsky’s theory supports this. Vygotsky stated that all high-level thinking skills occur in a social environment via social activities (Schunk, 2008). Thus, a learning environment which makes it easy to develop critical thinking skills through social interactions is important. Mathews (2003) determined four characteristics related to classroom environment that support critical thinking (cited in Crawford, Saul, Mathews & Makinster, 2009). The first characteristic is that both the teacher and the student share responsibilities in the classroom environment. According to this principle, for example, an environment where the class rules are agreed upon by the class supports critical thinking. The second feature is that the teacher serves as a role model for the students in terms of thinking skills, for example by presenting behavior showing importance different ideas. The third principle includes encouraging students to observe their own learning processes. The fourth is organizing a classroom that makes working together easy for students. The teacher behavior/classroom environment in support of critical thinking that the measurement instrument refers to in this study was examined in five groups supporting Open Mindedness, Questioning of the Accuracy
and Reliability of Information, High-Level Questioning, Seeking Causes and Evidence and Openness (Alkin, 2012).

When the CLE and the classroom environment supporting critical thinking are examined, it can be seen that there are some shared characteristics such as supporting different ideas in the classroom environment, giving students learning responsibilities, caring social experiences, observing students’ thinking processes, supporting students’ cooperatively working, encouraging high level questions to be asked and giving importance to conflicting topics. Moreover, when it is considered that one of the main aims of constructivism is developing critical thinking via experiences (Kwan & Wong, 2014), it can be stated that organizing a classroom environment aligned with CLE characteristics can be effective in supporting critical thinking. When the literature on CLE is examined, it is noticed that studies are more focused on evaluating the environment (Allodi, 2007; Aybek & Aglagul, 2011; Bal & Doganay, 2009; Bas, 2013; Busbea, 2006; Nix, Fraser & Ledbetter, 2005; Ocak, 2012; Petegem, Donche & Vanhoof, 2005). It can be seen that there are studies investigating the relationship between CLE and thinking friendly classroom environments (Doganay & Sarı, 2012), self-efficacy perceptions (Koc, 2013), epistemological beliefs (Dindar, Kirbulut & Boz, 2014; Marra, 2005), their attitudes on the constructivism approach (Uredi, 2013) and metacognitive strategies (Kirbulut & Gokalp, 2014). When it comes to practical, non-theoretical studies of classroom environment/teacher behaviors supporting critical thinking, there is Alkin (2012)’s doctoral thesis, which is on evaluating teacher behaviors supporting critical thinking. Notably, most of the literature on critical thinking and CLE was investigated, it attracts attention that most of the studies are experimental studies on teaching methods and the effectiveness of the program (Ernst & Monroe, 2006; Kaya, 2010). Apart from experimental studies, only one study was found on determining the effect of CLEs on critical thinking tendencies according to students’ views (Kwan & Wong, 2014). No study has tested the presently studied hypothesis statistically. In other words, there is no statistical study of the relationship between CLE characteristics and critical thinking. In line with the reasons mentioned, the aim of this study is to determine the regression level of CLE characteristics on classroom environment characteristics supporting critical thinking. In recent years both in the world and in Turkey, greater emphasis has been put on critical thinking skills to educate reasonable, wise and inquisitive people. Theoretical research conducted to develop critical thinking in literature has reported that constructivism has positive effects on the promotion of critical thinking. In this regard, the present study is believed to contribute to the confirmation of the assumption that constructivism has some positive impacts on the development of critical thinking.

Method

Research Design

By use of the correlational survey model, this quantitative research study aims to identify the predictive level of constructivist learning environments on classroom
environments supporting critical thinking. The relational screening model aims at determining the relationship among more than two variables (Fraenkel & Wallen, 2005).

Research Sample

The population of the study consists of a total of 4116 teachers working at primary and secondary schools in Kutahya city center and villages in Kutahya during the 2014–2015 school year. In the study, since 2005 when Primary Education Programs were developed, both class teachers and branch teachers working at primary schools were responsible for creating constructive learning environment and classroom environments supporting critical thinking, and this influenced setting the branch and class teachers into work. In addition to this, another reason why the related branches were included was to examine the psychometric characteristics of measurement instruments on the related branches included in the study. In determining the teachers included in the sample, a disproportional cluster sampling technique was used. This sampling technique is more economical and practical, especially for large-scale survey research studies (Balci, 2010). The target population of the study was the province of Kutahya, and each school in the province was considered a cluster. From these clusters, a random selection of schools was identified until the minimum desired number in the sample was reached. By means of the disproportional cluster sampling approach, scales were administered to classroom teachers and teachers of the subjects of math, science, Turkish and social studies in all schools included in the sample. The size of the sample was calculated as 351 at a 95% confidence level. It was decided to obtain the opinions of 400 teachers by means of scales by taking into consideration that scales may not be filled in correctly, completely or with care. Analysis was carried out on 351 scales, which were used as the data collection tool. Of the teachers who participated in the study, 42% were male (n=148) and 57% were female (n=202), 38% (n=132) were class teachers, 13% were science teachers (n=47), 14% were Turkish teachers and 13% were social science teachers (n=45). Of those included in the study, 53% of the teachers (n=185) had a seniority level of 1 to 10 years, 34% (n=121) had 10 to 20 years, 4% (n=13) had 20 to 30 years and 5% (n=18) had 30 to 40 years seniority. Among the teachers, 8% (n=29) had an education level of associate degree, 80% (n=282) had bachelor degrees and 8% (n=27) had postgraduate degrees. Fifty-five percent of the teachers had attended in-service teacher training courses in critical thinking, while 44% had not. Fifty-one percent of the sample had attended in-service training courses in constructivism, and 44% stated that they had not.

Research Instrument and Procedure

The study used the Constructivist Learning Environments Questionnaire (CLEQ) and the Critical Thinking Supportive Teachers’ Behaviors Inventory (CTSTBI) as data collection instruments.

CLEQ, developed by Tenenbaum, Naidu, Jegde and Austin (2001), was adapted to Turkish by Fer and Cirik (2006). The scale, prepared to evaluate CLE consists of 30 items and seven dimensions: “Discussions and Interviews (DI)”, “Conceptual
Contradictions (CC)”, “Sharing the Opinions with the Others (SOO)”, “Material and Sources Aiming to Lead to a Conclusion (MSALC)”, “Reflection and Motivation for the Discovery of Concepts (RMDC)”, “Meeting the Needs of the Learners (MNL)” and “Creating a Meaning and Correlating with the Real Life Situations (CMCRLS)”. The items in the scale are graded as “1-never and 5-completely”. The points taken from the scale range from 30 to 150. The higher the points, the higher the level of the constructivist learning environment. The Cronbach’s alpha internal consistency of the scale was found between 0.72 and 0.86 by Tenenbaum et al. (2001) and between 0.86 and 0.93 by Fer and Cirik (2006). In the present study, the Cronbach’s alpha internal consistency coefficient was calculated between 0.71 and 0.79 at the sub-dimensions, and for the whole scale it was found as .93. Some examples of the items of the CLEQ are as follows: “Students had the opportunity to express themselves”, “The lessons were helpful for students to follow their own individual goals”, “In the lesson, students learned to access and use the resources they required” and “Students were encouraged to share their individual ideas during the lesson”.

CTSTBI was developed by Alkin (2012). The scale which measures the behaviors of the teachers supporting critical thinking consists of 80 items and five dimensions as “Open Mindedness (OM)”, “High-Level Questioning (HLQ)”, Questioning of the Accuracy and Reliability of Information (QARI)”, “Seeking Causes and Evidence (SCE)”, “Openness (O)”. The items in the inventory are graded as “1-Does not reflect me at all” and “5- Reflects me a lot”. For the construct validity of the inventory, factor analysis was conducted for each dimension. As a result of the exploratory factor analysis, variance explaining the “OM” dimension formed by 18 items was 33.34%; variance explaining the “HLQ” dimension formed by 13 items was 34.49%; variance explaining the “QARI” dimension formed by 18 items was 35.65%; variance explaining the “SCE” dimension formed by 17 items was 35.70%; variance explaining the “O” dimension formed by 14 items was 35.63%. The Cronbach’s alpha coefficient of the scale fell between 0.83 and 0.89. In this study, the reliability of the inventory was re-tested. According to this, Cronbach’s alpha coefficient for the sub-dimensions were found as 0.86—.90. Some examples of items of the CTSTBI are as follows: “I prefer to use topics, themes or problems that allow for a different point of view in the classroom environment”, “I start the discussion about a text after I am sure that all the students understand the text”, “I provide feedback to students about whether the words or phrases used by students are clear and comprehensive”, “I guide students to ask questions which fit the purpose”, “I caution my students to check whether the information they access has a bibliography” and “I assess whether the students can support their opinions with evidence or justifications”.

Data Analysis

In the study, Pearson Correlation analysis was conducted to find out the relationship between teachers’ CLE and classroom environments supporting critical thinking. The absolute value of correlation coefficient between 0.70 and 1.00 was interpreted as high, 0.69—0.30 as medium, 0.29—0.00 as low (Buyukozturk, 2005). In the study, the points from the sub-dimension of CTSTBI formed the predicted
variables, and the points from the sub-dimensions of CLEQ formed the predictor variables. Multiple regression analysis was conducted to determine to what extent the CLE characteristics predicted the classroom environment characteristics supporting critical thinking. While interpreting whether the findings were significant or not, .05 significance level was taken as a criterion.

### Results

In this section, the results of the multiple regression analysis related to predicted and predicting variables are presented. The results of the multiple regression analysis take place in Tables 1, 2, 3, 4 and 5.

#### Table 1.
The results of The Regression Analysis Predicting Classroom Environment Supporting Open Mindedness

<table>
<thead>
<tr>
<th>Predictor Variables</th>
<th>B</th>
<th>Standard Error</th>
<th>β</th>
<th>t</th>
<th>p</th>
<th>Binary r</th>
<th>Partial r</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invariant</td>
<td>31.057</td>
<td>2.72</td>
<td>11.40</td>
<td>0.00</td>
<td>0.59</td>
<td>0.10</td>
<td></td>
</tr>
<tr>
<td>DI</td>
<td>0.429</td>
<td>0.22</td>
<td>0.152</td>
<td>1.93</td>
<td>0.05</td>
<td>0.59</td>
<td>0.10</td>
</tr>
<tr>
<td>CC</td>
<td>0.211</td>
<td>0.14</td>
<td>0.064</td>
<td>1.51</td>
<td>0.13</td>
<td>0.13</td>
<td>0.08</td>
</tr>
<tr>
<td>SOO</td>
<td>0.225</td>
<td>0.23</td>
<td>0.069</td>
<td>0.98</td>
<td>0.33</td>
<td>0.56</td>
<td>0.05</td>
</tr>
<tr>
<td>MSALC</td>
<td>1.118</td>
<td>0.31</td>
<td>0.248</td>
<td>3.62</td>
<td>0.00</td>
<td>0.59</td>
<td>0.19</td>
</tr>
<tr>
<td>RMDC</td>
<td>0.089</td>
<td>0.20</td>
<td>0.035</td>
<td>0.45</td>
<td>0.65</td>
<td>0.57</td>
<td>0.02</td>
</tr>
<tr>
<td>MNL</td>
<td>0.374</td>
<td>0.20</td>
<td>0.137</td>
<td>1.91</td>
<td>0.06</td>
<td>0.58</td>
<td>0.10</td>
</tr>
<tr>
<td>CMCRLS</td>
<td>0.385</td>
<td>0.24</td>
<td>0.106</td>
<td>1.61</td>
<td>0.11</td>
<td>0.55</td>
<td>0.09</td>
</tr>
</tbody>
</table>

R=0.67 \quad R^2=0.44 \quad F_{(5,159)}=38.86, \quad p= 0.00

As seen in Table 1, while there is a positive and medium level of relationship between classroom environment characteristics supporting the OM and DI dimension (r=0.59), SOO dimension (r=0.56), MSALC dimension (r=0.59), RMDC dimension (r=0.57), MNL dimension (r=0.58) and CMCRLS dimension (r=0.55), no relationship was found between classroom environment characteristics supporting the OM and CC dimensions. When the other variables were examined, a positive and low-level relationship was found between classroom environment characteristics supporting OM and only the MSALC dimension (r=0.19). All the characteristics of CLE showed medium-level and significant relationships with the points of classroom environment characteristics supporting OM (R=0.67, p<0.01). CLE characteristics explain 44% of the total variance of classroom environment characteristics supporting OM. According to the standardized regression coefficient, the order of importance of (β) CLE characteristics on classroom environment characteristics supporting OM is “MSALC”, “DI”, “MNL”, “CMCRLS”, “SOO”, “CC” and “RMDC”. When the t-test results related to regression coefficient significance were examined, it was seen that only the “MSALC” dimension was the predictor of
classroom environment supporting OM. According to the findings obtained, the regression equality of classroom environment supporting OM is as follows:

\[
\text{Classroom environment supporting Open Mindedness} = 31.057 + .429 (\text{DI}) + .211 (\text{CC}) + .225 (\text{SOO}) + 1.118 (\text{MSALC}) + .089 (\text{RMDC}) + .374 (\text{MNL}) + .385 (\text{CMCRLS})
\]

Table 2.

<table>
<thead>
<tr>
<th>Predictor Variables</th>
<th>B</th>
<th>Standard Error</th>
<th>β</th>
<th>t</th>
<th>p</th>
<th>Binary r</th>
<th>Partial r</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invariant</td>
<td>21.541</td>
<td>1.89</td>
<td>11.39</td>
<td>0.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DI</td>
<td>.127</td>
<td>0.15</td>
<td>.062</td>
<td>0.82</td>
<td>0.41</td>
<td>0.61</td>
<td>0.04</td>
</tr>
<tr>
<td>CC</td>
<td>-0.047</td>
<td>0.10</td>
<td>-0.020</td>
<td>-0.48</td>
<td>0.63</td>
<td>0.06</td>
<td>-0.03</td>
</tr>
<tr>
<td>SOO</td>
<td>.321</td>
<td>0.16</td>
<td>.134</td>
<td>2.00</td>
<td>0.05</td>
<td>0.61</td>
<td>0.11</td>
</tr>
<tr>
<td>MSALC</td>
<td>.770</td>
<td>0.21</td>
<td>.234</td>
<td>3.60</td>
<td>0.00</td>
<td>0.63</td>
<td>0.19</td>
</tr>
<tr>
<td>RMDC</td>
<td>.322</td>
<td>0.14</td>
<td>.172</td>
<td>2.34</td>
<td>0.02</td>
<td>0.62</td>
<td>0.13</td>
</tr>
<tr>
<td>MNL</td>
<td>.151</td>
<td>0.14</td>
<td>.076</td>
<td>1.11</td>
<td>0.27</td>
<td>0.59</td>
<td>0.06</td>
</tr>
<tr>
<td>CMCRLS</td>
<td>.345</td>
<td>0.17</td>
<td>.130</td>
<td>2.08</td>
<td>0.04</td>
<td>0.60</td>
<td>0.11</td>
</tr>
</tbody>
</table>

R=0.70   \quad R^2=0.50

\[
F_{(5,159)}=48.22, \quad p=0.00
\]

As seen in Table 2, while there is a positive and medium-level relationship between classroom environment characteristics supporting HLQ and DI dimension (r= 0.61), SOO dimension (r= 0.61), MSALC dimension (r= 0.63), RMDC dimension (r= 0.62), MNL dimension (r=0.59), CMCRLS dimension (r=0.60), no relationship was found between classroom environment characteristics supporting HLQ and CC. When the other variables were examined, a positive and low-level relationship between classroom environment characteristics supporting HLQ and only the MSALC dimension (r=0.19) were found. With all the characteristics of constructivist learning environments, the points of classroom environment characteristics supporting HLQ displayed a high-level and significant relationship (R=0.70, p<0.01). CLE characteristics explain 50% of the total variance of classroom environment characteristics supporting HLQ. According to the standardized regression coefficient, the order of importance of (β) CLE characteristics on the related dimension is: “MSALC”, “RMDC”, “SOO”, “CMCRLS”, “MNL”, “DI”, “CC”. When the t-test results related to regression coefficient significance were examined, it was seen that “MSALC”, “RMDC” and “CMCRLS” dimensions were the predictors of classroom environment supporting HLQ. According to the findings obtained, the regression equality of classroom environment supporting HLQ is as follows:

\[
\text{Classroom environment supporting High-Level Questioning} = 21.541 + .127 (\text{DI}) - .047 (\text{CC}) + .321 (\text{SOO}) + .770 (\text{MSALC}) + .322 (\text{RMDC}) + .151 (\text{MNL}) + .345 (\text{CMCRLS})
\]
Table 3.
Regression analysis results related to prediction of classroom environment supporting Questioning of the Accuracy and Reliability of Information

<table>
<thead>
<tr>
<th>Predictor Variables</th>
<th>B</th>
<th>Standard Error</th>
<th>( \beta )</th>
<th>t</th>
<th>p</th>
<th>Binary r</th>
<th>Partial r</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invariant</td>
<td>28.302</td>
<td>3.04</td>
<td>9.30</td>
<td>0.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DI</td>
<td>.282</td>
<td>0.25</td>
<td>.093</td>
<td>1.14</td>
<td>0.26</td>
<td>0.54</td>
<td>0.06</td>
</tr>
<tr>
<td>CC</td>
<td>.313</td>
<td>0.16</td>
<td>.089</td>
<td>2.01</td>
<td>0.04</td>
<td>0.19</td>
<td>0.11</td>
</tr>
<tr>
<td>SOO</td>
<td>-.131</td>
<td>0.26</td>
<td>-.037</td>
<td>-0.51</td>
<td>0.61</td>
<td>0.47</td>
<td>-0.03</td>
</tr>
<tr>
<td>MSALC</td>
<td>.656</td>
<td>0.34</td>
<td>.135</td>
<td>1.90</td>
<td>0.06</td>
<td>0.51</td>
<td>0.10</td>
</tr>
<tr>
<td>RMDC</td>
<td>.226</td>
<td>0.22</td>
<td>.082</td>
<td>1.02</td>
<td>0.31</td>
<td>0.55</td>
<td>0.05</td>
</tr>
<tr>
<td>MNL</td>
<td>1.009</td>
<td>0.22</td>
<td>.342</td>
<td>4.61</td>
<td>0.00</td>
<td>0.60</td>
<td>0.24</td>
</tr>
<tr>
<td>CMCRLS</td>
<td>.263</td>
<td>0.27</td>
<td>.067</td>
<td>0.99</td>
<td>0.32</td>
<td>0.49</td>
<td>0.05</td>
</tr>
</tbody>
</table>

\( R=0.63 \) \( R^2=0.40 \)

\( F_{(7,344)}=33.11, \) \( p=0.00 \)

As Table 3 displays, while there is a positive and medium-level relationship between classroom environment characteristics supporting the QARI and DI dimension (\( r=0.54 \)), SOO dimension (\( r=0.47 \)), MSALC dimension (\( r=0.51 \)), RMDC dimension (\( r=0.55 \)), MNL dimension (\( r=0.60 \)) and CMCRLS dimension (\( r=0.49 \)), a positive and medium-level relationship was found between classroom environment characteristics supporting the QARI and CC dimension (\( r=0.19 \)). When the other variables were examined, a positive and low-level relationship was found between classroom environment characteristics supporting QARI and only with the “MNL” dimension (\( r=0.24 \)). With all the characteristics of constructivist learning environments, the points of classroom environment characteristics supporting QARI displayed a medium-level and significant relationship (\( R=0.63, \) \( p<0.01 \)). CLE characteristics explain 40% of the total variance of classroom environment characteristics supporting QARI. According to the standardized regression coefficient, the order of importance of (\( \beta \)) CLE characteristics on the related dimension is: “MNL”, “MSALC”, “DI”, “CC”, “RMDC”, “CMCRLS”, “SOO”. When the t-test results related to regression coefficient significance were examined, it was seen that “MNL” and “CC” dimensions were the predictors of classroom environments supporting QARI. According to the findings obtained, the regression equality of classroom environments supporting QARI is as follows:

Classroom environment supporting Questioning of the Accuracy and Reliability of Information= 28.302 + 0.282 (DI) + 0.313 (CC) - 0.131 (SOO) + 0.656 (MSALC) + 0.226 (RMDC) + 1.009 (MNL) + 0.263 (CMCRLS)
As exhibited in Table 4, while there is a positive and medium-level relationship between classroom environment characteristics supporting SCE and the DI dimension (r= 0.61), SOO dimension (r= 0.55), MSALC dimension (r= 0.57), RMDC dimension (r= 0.62), MNL dimension (r=0.64) and CMCRLS dimension (r=0.54), a positive and low-level relationship was found between classroom environment characteristics supporting SCE and the CC dimension. When the other variables were examined, a positive and low-level relationship was determined between classroom environment characteristics supporting SCE and only the ‘MNL’ dimension (r=0.21).

With all the CLE characteristics, the points of classroom environment characteristics supporting SCE show a medium-level and significant relationship (R=0.69, p<0.01). CLE characteristics explain 47% of the total variance of classroom environment characteristics supporting SCE. According to the standardized regression coefficient, the order of importance of (β) CLE characteristics on the related dimension is: ‘MNL’, ‘DI’, ‘RMDC’, ‘MSALC’, ‘CC’, ‘CMCRLS’, ‘SOO’. When the t-test results related to regression coefficient significance were examined, it was seen that only the ‘MNL’ dimension was a predictor of classroom environments supporting SCE. According to the findings obtained, the regression equality of classroom environments supporting SCE is as follows:

Classroom environment supporting Seeking Causes and Evidence = 22.772 + .408 (DI) + .208 (CC) + .057 (SOO) + .567 (MSALC) + .362 (RMDC) + .804 (MNL) + .225 (CMCRLS)
Table 5.

Regression Analysis Results Related To Prediction Of Classroom Environment Supporting Openness

As seen in Table 5, while there is a positive and medium-level relationship between classroom environment characteristics supporting O and the DI dimension (r= 0.56), SOO dimension (r= 0.60), MSALC dimension (r= 0.66), RMDC dimension (r= 0.56), MNL dimension (r=0.55) and CMCRLS dimension (r=0.57), no relationship was found between classroom environment characteristics supporting O and the CC dimension. When the other variables were examined, a positive and low-level relationship was determined between classroom environment characteristics supporting O and only the ‘MSALC’ dimension (r=0.29). With all the CLE characteristics, the points of classroom environment characteristics supporting O show a high-level and significant relationship (R=0.70, p<0.01). CLE characteristics explain 48% of the total variance of classroom environment characteristics supporting O. According to the standardized regression coefficient, the order of importance of (β) CLE characteristics on the related dimension is: ‘MSALC’, ‘SOO’, ‘CMCRLS’, ‘RMDC’, ‘CC’, ‘MNL’, ‘DI’. When the t-test results related to regression coefficient significance were examined, it was seen that ‘SOO’, ‘MSALC’, ‘CMCRLS’ dimensions were the predictors of classroom environments supporting O. According to the findings obtained, the regression equality of classroom environments supporting O is as follows:

Classroom Environment supporting Openness= 27.238 - .009 (DI) - .139 (CC) + .399 (SOO) + 1.286 (MSALC) + .141 (RMDC) + .114 (MNL) + .360 (CMCRLS)

Discussion and Conclusion

This study aimed to determine the regression level of CLE characteristics on classroom environment characteristics supporting critical thinking according to the teachers who participated in the study.
In the study, in general, it was found that there was a medium-level, positive and significant relationship between the sub-dimensions of CLEQ (except for the CC dimension) and the sub-dimensions of CTSTBI. In this respect, it may be stated that the more the CLE characteristics of the class of teachers in Kutahya increase, the more supportive they are of critical thinking. In the literature, it may be stated that the study results showing significant relationships between CLE characteristics, thinking-friendly classroom characteristics (Doganay & Sarı, 2012) and metacognitive learning tendencies (Kirbulut & Gokalp, 2014), even indirectly, may support the results of the present study. A low relationship was found for the 'CC' dimension and some of the sub-dimensions of CTSTBI; for some sub-dimensions no relationship was found at all (OM, HLQ and O). However, in classroom environments, the creation of imbalanced situations, such as students experiencing conflicts and confusion of their thoughts, was one of the necessary characteristics of a classroom environment supporting critical thinking. One of the reasons for this unexpected finding may be the teacher’s perception of “students experiencing conflicts in lessons”, which was emphasized by the items as a negative situation. It was found that being parallel with the medium level, in general, the positive and the significant relationships between both variables, CLE characteristics explained half of the total variance in classroom environment characteristics supporting critical thinking (OM= 44%, HLQ= 50%, QARI= 40%, SCE= 47%, O=48%). These results show that the belief expressed in the literature that organizing the classroom environment according to CLE characteristics is an effective means of supporting critical thinking is true to a great extent. The findings of Doganay and Sarı’s study (2012) on the relevant topic are consistent with the results of the present study.

Another finding obtained from the study is that the ‘MSALC’ dimension from the predictor variables predicted the classroom environment supporting OM, HLQ and O significantly. Students’ seeing the events, ideas or thoughts from different points of view, questioning the ideas being accepted by most of the society, using oral, written or visual materials that help them to form high-level questions related to the subject taught, and aiding them to understand clearly the subjects or concepts they did not understand all influence classroom environments supporting OM, HLQ and O (Alkin, 2012). Considering this, it may be stated that when the use of materials aiming taking the classroom environment to solutions increases, the classroom environment characteristics supporting OM, HLQ and O will increase too.

In the study, it was seen that the ‘CC’ dimension predicted classroom environment supporting QARI significantly. According to Tenenbaum et al. (2001), the ‘CC’ dimension points to characteristics in classrooms, such as creating unbalanced situations, discussing conflicts and solving conflicts. One of the behaviors students would show in the process of solving conflicts would be questioning the truth and reliability of the knowledge. As a result, creating unbalanced situations in the classroom environment will create an environment where the learners question the truth and reliability of the knowledge, which causes conflict. In this sense, it may be expressed that the findings reached in the present study were as expected.
In the study, it was also found that the ‘SOO’ and ‘CMCRLS’ dimensions from the predictor variables predicted classroom environment supporting O in a significant way. Classroom environment characteristics supporting O include creating a classroom environment where students would want the concepts they did not understand to be explained, where the students are encouraged to share the concepts they did not understand in class, where students are encouraged to pose questions to each other about the views they did not understand and where supplying concrete, clarifying examples of the views or concepts not understood takes place. To actualize such a classroom environment, there is a need for a learning environment where knowledge is constructed on basic concepts of the ‘CMCRLS’ dimension characteristic, where concrete examples from students’ real lives are presented to them, and where the teacher and the students interact, which is the characteristic of the ‘SOO’ dimension (Fer & Cirik, 2006). In this sense, it can be stated that a classroom environment created where ideas are shared and meanings are connected to real life has a classroom environment characteristic supporting O.

An important finding reached in the present study is that the ‘DI’ dimension from the predictor variables predicted none of the predicted variables significantly. Some of the items representing ‘DI’ dimension are: (1) The subjects were taught by discussing and negotiating in class. (2) Students were encouraged to put forward genuine ideas in class. (3) Students learned to develop mental point of views, such as critical thinking. As seen, it is extremely surprising that although there was an item directly developing critical thinking in the related dimension, it predicted none of the dependent variables. Considering this finding, descriptive statistics were carried out related to the items representing the relevant dimension. According to the analyses, it was observed that the highest average belonged to the item “Students were encouraged to put forward genuine ideas in class” ($\bar{x}=3.93$, s=.87) and that the lowest average belonged to the item “Students learned to develop mental point of views, such as critical thinking” ($\bar{x}=3.70$, s=.88). The items receiving the highest average of this sample group may have featured the judgment/perception on evaluating the classroom environment supporting critical thinking rather than the classroom environment supporting critical thinking, which is one of the high-level thinking skills. This situation can be one of the reasons for the unexpected and surprising result.

Depending on the strong regression relationships obtained from the study, it can be stated that to create a classroom environment supporting critical thinking in the courses of the teachers in Kutahya included in the study, the classes of those teachers need to be in constructivist learning environments. Thus, it will contribute to educate individuals who question existing knowledge and make new knowledge more meaningful by combining it with their previous learning. The ‘MSALC’ dimension is an extremely strong and significant predictor in creating a classroom environment supporting critical thinking. In this sense, the teachers in Kutahya receiving in-service training provided on the present topic should be made aware of the ‘MSALC’ dimension characteristics. In the study, in general no relationship was found between the ‘CC’ dimension and the predicted variables. However, students experiencing
conflict is one of the necessary characteristics for the relevant classroom environment. Considering this, the teachers in Kütahya who receive in-service training on the present topic should be made aware of the ‘CC’ dimension characteristics. Since there is a limited number of studies on this topic, it was difficult to discuss the results of the present study with outside findings and to make generalizations. In this sense, to conduct similar studies whose findings can be discussed with the outside findings and can be generalized, additional studies can be conducted by making use of the measurement scales used in this study and by including different samples. In addition, the reason why the ‘DI’ dimension did not predict nearly any of the predicted variables in the study is related rather to the items in the dimension to have created the perception of evaluating the environment supporting critical thinking at teachers. In future studies, the hypothesis put forth in this study can be tested.

References


Yapilandirmacı Öğrenme Ortamı Özelliklerinin Eleştirel Düşünmeye Destekleyen Sınıf Ortamı Özelliklerini Yordama Düzeyi

**Atıf:**
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**Özet**

inançları, yapılandırmacı yaklaşım ilişkisinin tutumları, üst biliş stratejileri, öğrenme davranışları ve düşünceye stilleri arasındaki ilişkiye belirlemeye yönelik çalışmalardan da olduğu görülmektedir. Eleştirel düşünceye destekleyen sınıf ortamının anlayım alan yazın incelendiğinde ise kurumsal çalışmalarının dışında eleştirel düşünceye destekleyen öğrenmenin davranışlarının değerlendirilmesine yönelik yapılan bir çalışmaya ulaştırılmıştır. Öğretmenlerin eleştirel düşünceye destekleyen öğrenmenin davranışları ile öğrenen özellikli arasındaki ilişkiye belirlemeye yönelik de yalnızca bir çalışmaya ulaştırıldı. Araştırmaların üçüncüsü, öğrenmenin ortamı özellikleri ele alınarak destekleyen sınıf ortamın özelliklerini ne ölçüde destekleyen öğrenmenin alt becerisi olan eleştirel düşünceye destekleyen sınıf ortamı özelliklerini yordama düzeyinin belirlenmesidir.

Araştırmanın Amacı: Öğretmenlerin davranışlarına göre, yapılandırmacı öğrenme ortamının özelliklerinin eleştirel düşünceye destekleyen sınıf ortamı özelliklerini yordama düzeyinin belirlenmesidir.


Araştırmanın Bulguları: Araştırımda yapılan regresyon analizi sonuçlarına göre, yapılandırmacı öğrenme ortamı özellikleri, açık fikirlilığı destekleyen sınıf ortamı özelliklerindeki toplam varyansın % 44’ünü; üst düzey soru sormayı destekleyen sınıf ortamı özelliklerindeki toplam varyansın % 50’sini; bilginin doğruluğunu ve güvenilirliğini sorgulama yi destekleyen sınıf ortamı özelliklerindeki toplam varyansın % 40’ını; neden kanat aramayı destekleyen sınıf ortamı özelliklerindeki toplam varyansın % 47’sini; açık fikirliği destekleyen sınıf ortamı özelliklerindeki toplam varyansın % 48’ini açıklamaktadır. Araştırımda, regresyon katsayısının anlamılığına ilişkin t testi sonuçları, “materyal ve kaynakların çözümü götürmeyi amaçlaması” boyutunun, açık fikirliliği; “materyal ve kaynakların çözümü götürmeyi amaçlaması”, “yansıtma ve kavram keşfi için motive etme” ve “anlam oluşturma ve geçer yaşam olaylarıyla bağlı” boyutlarının, üst düzey soru sormayı; “öğrenen ihtiyaçlarını karşılama” ve “kavrumsal çelişkiler” boyutlarının, bilginin doğruluğunu
ve güvenirliğini sorgulamayı; “öğrenen ihtiyaçlarını karşılama” boyutunun, neden kanat aramayı; “düşünceleri dişleriyle paylaşma”, “materyal ve kaynakların çözüme götürmeyi amaçlaması” ve “anlam oluşturma ve gerçek yaşam olaylarıyla bağlantılı” boyutlarının, açıklığı destekleyen sınıf ortamının yordayıcısı olduğunu göstermektedir.

Gelecek araştırmalarda, ilgili sınıf ortamları, öğrenci görüşleri ya da sınıf içi gözlemler yoluya da incelebilir.

Anahtar sözcükler: Yapılandırıcılık, eleştirel düşünce, öğrenme ortamı, yapılandırıcı öğrenme ortamı, eleştirel düşünceyi destekleyen sınıf ortamı.
Teachers’ Withdrawal Behaviors and their Relationship with Work Ethic*

Özge ERDEMLİ**

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Abstract

Problem Situation: People experience ups and downs in their job satisfaction and motivation levels at different points of their work lives for various reasons. One of the outputs of low job satisfaction and motivation is defined as “withdrawal behaviors” in the literature. Withdrawal behaviors are any employee behavior of withdrawal from duties and responsibilities as a result of a distance that grows between the employee and the organization. It is an important necessity to investigate such behaviors at educational institutions. Determining teachers’ withdrawal behaviors will be useful in enabling more effective and successful performance of their job. Also, considering that their withdrawal behaviors adversely affect the students’ success, investigation of such behaviors is an important necessity in respect to the quality of education.

Purpose: This study aims to identify teachers’ withdrawal behaviors and the relationship between such behaviors and work ethics based on the views of teachers and school administrators serving in public elementary schools.

Method: Designed in single and relational screening models, the study was conducted using a mixed research method. The study sample in quantitative dimension is comprised of 381 elementary school teachers and 198 elementary school administrators. Under the quantitative dimension of the study, 15 elementary school teachers and 15 school administrators were interviewed. Teachers’ withdrawal behaviors were studied using the “Withdrawal Behaviors Scale” and their views on work ethics were studied using the “Work Ethics Scale.” The quantitative data was collected using a semi-structured form.

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Findings: According the results attained, teachers believe that they seldom exhibit physical and psychological withdrawal behaviors at school. School administrators, similarly, also believe that teachers seldom exhibit physical and psychological withdrawal behaviors. Of the physical withdrawal behaviors exhibited by the public elementary schools in Ankara, prolonging intermissions between the class sessions is the most common. This behavior is followed by not participating in in-service trainings, seminars, and symposia. As a psychological withdrawal behavior, the most common, according to the teachers, is expressing the intent to leave the school or profession at every opportunity, and the most common, according to the school administrators, is chatting with colleagues during work hours. There is a significant negative relationship between the physical and psychological withdrawal behaviors and the work-oriented sub-dimensions, which are dedication to work and commitment to duty. While there is a low level of significant positive relationship between the physical withdrawal behaviors and the delight-oriented dimension of attributing success to external factors, there is a low level of significant positive relationship between psychological withdrawal behaviors and the delight-oriented sub-dimensions of attributing success to external factors and utilitarianism.

Results and Recommendations: A decrease in teachers’ ethical values such as dedication to work and commitment to duty leads to an increase in physical and psychological withdrawal behaviors. Therefore, to decrease the teachers’ physical and psychological withdrawal behaviors, it must be ensured that they adopt puritan ethical values, including dedication to work and commitment to duty. With this in mind, in order for teachers to care more for their profession and fulfill their duties with care, school administrators must ensure that teachers feel trusted and valued, and must pay attention to allow them to take more initiative in school activities.

Keywords. Physical withdrawal, psychological withdrawal, work ethics, job satisfaction, motivation, teachers.

Introduction

Employees’ attitudes and behaviors toward work, having a vital place in organizational life, are becoming increasingly important. Although employees are expected to exhibit positive attitudes and behaviors, unfavored behaviors such as tardiness, absence, cyberloafing, and arguments with colleagues are also observed. Some of the unfavored behaviors at organizations are withdrawal behaviors. In this context, one of the issues that should be strongly focused on is employees’ withdrawal behaviors.

Withdrawal behavior is defined by Spendolini (1985) as some form of volitional response to the perceived deterrent conditions designed to increase psychological and physical distance between the employee and the organization. Oh (1995) similarly considers such behaviors as a reaction by an employee dissatisfied with their work situation. According to a different definition, withdrawal behaviors are
actions intended to place physical or psychological remoteness between the employee and the organization (Rosse\& Hulin, 1985: as cited by Carmeli, 2004). Based on the above definitions, withdrawal behaviors can be defined as any employee behaviors of withdrawal from duties and responsibilities as a result of a distance that grows between the employee and the organization.

Employees’ withdrawal behaviors can be said to have many interrelated determining factors. Spedololini (1985) groups such variety of determining factors into three main titles. Accordingly, individual factors such as gender, age, and seniority, organizational factors such as the size of the organization, job satisfaction, and commitment to the organization, and economic factors such as overall economic condition, wages, skill level, employment condition, and leadership style play a role in employees’ withdrawal behaviors.

Withdrawal behaviors resulting from many factors manifest themselves in many different forms in organizations. In the literature research is available on the grouping behaviors of withdrawal from work as job withdrawal and work withdrawal (Hanish\& Hulin, 1991: as cited by Ratnasingam, 2012). However, the researchers (e.g., Lehman \& Simpson, 1992; Mirsepas, Memorzd, Alipour\&Felzi, 2012; Redmond, 2014) group withdrawal behaviors in an organization into two categories, as physical and psychological withdrawal behaviors.

Actions that allow the employee to physically escape from the work environment for a short or long term are referred to as physical withdrawal behaviors (Mirsepas, Memorzd, Alipour\&Felzi, 2012). These behaviors are those that refer to physical absence of employees from the work environment, thus limiting their fulfillment of job responsibilities (Lehman \& Simpson, 1992). Although an employee withdrawing from their duties physically withdraws from their work, they can psychologically withdraw from their work, as well. Actions that allow an employee to mentally withdraw from the work environment are psychological withdrawal behaviors (Fisher, 2004). Psychological withdrawal actually means that employees have essentially been lost even though they are occupying a chair in the work environment (Hulin, 1991: as cited by Mirsepas, Memorzd, Alipour\&Felzi, 2012).

It can be suggested that employees, taking a dislike to their jobs, express their dissatisfaction by exhibiting physical and psychological withdrawal behaviors in many different forms. Employees’ withdrawal behaviors at the organization can be summarized in general as in Figure 1.

As seen in Figure 1, employees’ withdrawal behaviors consist of two dimensions: physical and psychological. Each dimension has many forms of behaviors.

Withdrawal behaviors, being the focal point of the present study, are observed to appear in many different forms at organizations. Although various factors are argued to cause such behaviors, it may be suggested that employees’ perspectives on working and their work ethics have a significant role in this matter. Employees’ work ethics will affect their perspective on the organization and the concept of working, which will be reflected in their attitudes and behaviors. In fact, the concept of work ethics is an important determinant of their behaviors with respect to their work (Miller, Woehr\& Hudspeth, 2001). For instance, employees adopting puritan
work ethics avoid absenteeism at work, as they believe in the intrinsic value of hard work (Judge & Martocchio, 1996).

According to Bozkurt (2000), working was regarded as an “inferior” activity in ancient times, and gained a central importance in the social life with the industrialization process in the modern age. “Positive attitudes and behaviors of individuals living in a society toward working and their jobs” are also defined as work ethics (Ozdemir, 2009, 305). Baruchle and Azam (2003) suggest that work ethics are about the desirable attitudes, values, and habits expected from employees.

Brown (1996; as cited by Hudspeth, 2003) argues that individuals with values of hard work feel compelled to use their skills in the best manner and carry on their activities with maximum effort. Also, work ethics encourage a high level of employee involvement in work (Randall & Cote, 1991; as cited by Yousef, 2001). Therefore, individuals’ perspectives of working and work ethics may reflect on their attitudes and behaviors. Therefore, work ethic as a withdrawal behavior is one of the issues on which organizations must strongly focus. This study aims to determine teachers’ forms of withdrawal behavior and test the relationship between such forms of behavior and work ethics, based on the views of teachers and school administrators serving in public elementary schools in Ankara.

Figure 1. Withdrawal Behaviors
Method

Research Design

This study is designed using single and relational screening methods. The single screening model was used to describe teachers’ and school administrators’ perceptions of teachers’ forms of withdrawal behaviors. The relational screening model was used to investigate teachers’ forms of withdrawal behaviors and their views on the dimensions of work ethics.

The research was conducted using a mixed research method of both quantitative and qualitative research methods. In the quantitative dimension, the scales were used to determine teachers’ and school administrators’ views on teachers’ withdrawal behaviors and work ethics. In the qualitative dimension, teachers and school administrators were interviewed to describe teachers’ withdrawal behaviors in detail.

Sample

The study was conducted with the participation of elementary school teachers and administrators working at public schools in nine sub-provinces of Ankara (Altındağ, Çankaya, Etimesgut, Gölbaşı, Keçiören, Mamak, Pursaklar, Sincan and Yenimahalle). The study consists of two sub-populations. 381 teachers were assumed to represent the first sub-population of 14071 elementary school teachers at $\alpha = .05$ significance and 5% tolerance level. 277 school administrators were assumed to represent the second sub-population of 909 school administrators at $\alpha = .05$ significance and 5% tolerance level (Anderson, 1990; as cited by Balci, 2010). The sample selection was conducted using a stratified sampling method. According to this method, each of the nine sub-provinces in Ankara was treated as a stratum.

All of the 381 elementary school teachers comprising the research sample were reached, while the surveys were conducted with 198 school administrators, corresponding to 71.5% participation. The reasons for this are that the assignments of school administrators ended by the end of the 2013-2014 academic year within the frame of the Regulation for Appointment of Administrators of Education Institutions under the Ministry of National Education (MoNE, 2014a), that appointments to some of the administrator positions at the education institutions could not be made until December, and that participation in the study was voluntary.

Of the teachers participating in the study, 80% are females, 20% are males, and of the administrators participating in the study, 22% are females and 78% are males. The seniority levels of the teachers participating in the study are 1-5 years for 6%, 6-20 years for 74%, and 21 years or more for 20%. The seniority levels of the administrators participating in the study are 1-5 years for 35%, 6-15 years for 36%, and 16 years or more for 29%. Of the teachers, 12% have an associate degree, 82% have an undergraduate degree, and 6% have a graduate degree. Finally, of the administrators, 13% have an associate degree, 66% have an undergraduate degree, and 21% have a graduate degree.
The qualitative dimension of the study was carried out by interviewing a working group comprised of 15 teachers and 15 school administrators working at public elementary schools in nine sub-provinces of Ankara.

Data Collection and Analysis

The “Withdrawal Behaviors Scale” developed by the researcher was used to determine the elementary school teachers’ withdrawal behaviors. The scale consists of two separate sub-scales named “physical withdrawal behaviors scale” (8 items) and “psychological withdrawal behaviors scale” (12 items). In the preliminary trial, the draft scales were applied on a total of 278 participants including 200 teachers and 78 school administrators. Teacher views on work ethics were investigated using the “Work Ethics Scale” developed by Aydın, Demirkasımoğlu, Güner Demir, and Erdemli. The Work Ethics Scale consists of two sub-scales, work-oriented and delight-oriented. The preliminary application of this scale was realized on a total of 253 participants, including 93 administrators and 160 teachers. A semi-structured interview form was developed by the researcher for the qualitative dimension of the study.

An unrelated t test was used to determine whether there was a significant variance between the views based on the gender variable. A Kruskal Wallis H test and a one-way analysis of variance were used to test whether there was a significant variance based on the seniority and education degree variables. The Spearman-Brown Rank Orders correlation coefficient was evaluated to explain the level or magnitude and direction of the relationship between the teachers’ withdrawal behaviors and their views on the work ethics. The .05 significance level was taken as a criterion in the data analysis. Interview records derived under the qualitative dimension of the study were analyzed using the NVivo 10 package program. The data were analyzed using the content analysis method.

Validity and Reliability Analyses

Validity and reliability of the Physical Withdrawal Behaviors Scale (PHWS). The draft PHWS form had 11 items before the preliminary application. Kaiser-Meyer-Olkin (KMO) value of .89 and the result of the Barlett test as significant (p<0.01) showed that the sample was concordant for the factor analysis. The exploratory factor analysis showed that PHWS primarily consisted of two factors. Overlapping items in these factor groups were eliminated from the evaluation, and analyses were repeated. The scale was found to have a single-factor structure after the elimination of the overlapping items. The total variance explained by this factor is 49.60%. The Cronbach Alpha reliability coefficient of the scale was calculated as .85. When the findings derived from the confirmatory factor analysis (CFA) for the PHWS were evaluated, χ²/sd ratio and RMSEA were calculated respectively as 2.50 and 0.075. These values suggest that the model is concordant. An evaluation of the other fit indices (NFI= 0.96, NNFI= 0.97, CFI = 0.98, GFI = 0.96, AGFI = 0.92) suggest that the model is perfectly concordant (Schermelleh-Engel, Moosbrugger& Müller, 2003).

Validity and reliability of the Psychological Withdrawal Behaviors Scale (PSWS). The draft PSWS form had 19 items before the preliminary application. The KMO value of .95 and the result of the Barlett test as significant (p<0.01) showed that
the sample was concordant for the factor analysis. The exploratory factor analysis showed that “Psychological Withdrawal Behaviors Scale” consisted of two factors. Overlapping items in these factor groups were respectively eliminated from the evaluation, and analyses were repeated. The scale was found to have a single-factor structure after the factor rotation. The total variance explained by this factor is 57.72%. The Cronbach Alpha reliability coefficient of the scale was calculated as .93. χ²/sd ratio and RMSEA calculated with CFA for the PSWS were calculated respectively as 2.66 and 0.079, which suggested that the scale had an acceptable concordance. In this study, NFI was calculated as 0.97, NFFI as 0.98, and CFI as 0.98. These values are within the perfect concordance limits of the goodness of fit index. When the GFI and AGFI values were examined, GFI was calculated as 0.92, and AGFI as 0.88, and these values are within the limits of good or acceptable concordance (Schermelleh-Engel, Moosbrugger & Müller, 2003).

Validity and reliability of the Work Oriented Scale. The “Work Oriented Scale” exhibits a four-factor structure. The first dimension has five items, the second dimension has four items, the third dimension has three items, and the fourth dimension has three items, adding up to 15 items in total. The dimensions are, respectively, “Dedication to Work,” “Work Discipline,” “Commitment to Duty,” and “Integration with Work.” The total variance explained collectively by the four factors is 60.22%. The Cronbach-Alpha internal consistency coefficient of the scale is .84.

Validity and reliability of the Delight Oriented Scale. The second sub-scale of the Work Ethics Scale, the “Delight Oriented Scale,” exhibits a three-factor structure. The first factor (attributing success to external factors) consists of five items, the second factor (living the moment) consists of three items, and the third factor (utilitarianism) consists of three items. The total variance explained collectively by the factors, “attributing success to external factors,” “living the moment,” and “utilitarianism,” is 55.94%. The internal consistency coefficient of the scale was calculated as .79.

Semi-structured interview form. The interview form was prepared in parallel to the “Withdrawal from Work Scale.” The draft interview forms prepared were submitted for expert opinion regarding their content validity, and necessary amendments were made based on the evaluation of the experts. In order to test the reliability of the analyses, the compromise percentage formula suggested by Miles and Huberman (1994) was used: A researcher from the educational management field was requested to code the interview records derived under this scope. As a result of the coding, the reliability of the study was calculated as P = 323 / (323 + 25) X 100 = ~%92.8. Accordingly, it was concluded that analyses were conducted in a reliable way.

Results

Findings Regarding Teachers’ Physical Withdrawal Behaviors

Arithmetic mean and standard deviation values of the teacher and administrator views on teachers’ physical withdrawal behaviors were calculated as presented in Table 1.
Table 1.

Arithmetic Mean and Standard Deviation Values of the Teacher and Administrator views on the Dimension of Teachers’ Physical Withdrawal Behaviors

<table>
<thead>
<tr>
<th>No.</th>
<th>Scale Item</th>
<th>Teachers</th>
<th>Administrators</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Taking leave and sick leave even when not sick</td>
<td>1.84</td>
<td>2.22</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.84</td>
<td>0.81</td>
</tr>
<tr>
<td>2.</td>
<td>Being late for school</td>
<td>1.99</td>
<td>2.31</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.82</td>
<td>0.78</td>
</tr>
<tr>
<td>3.</td>
<td>Leaving the class before the bell rings</td>
<td>1.44</td>
<td>1.63</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.70</td>
<td>0.75</td>
</tr>
<tr>
<td>4.</td>
<td>Not participating in planned school meetings (group meetings, parents</td>
<td>1.43</td>
<td>1.65</td>
</tr>
<tr>
<td></td>
<td>meetings, etc.) and ceremonies</td>
<td>0.65</td>
<td>0.75</td>
</tr>
<tr>
<td>5.</td>
<td>Not returning to school when assigned to an activity outside the school</td>
<td>1.80</td>
<td>2.47</td>
</tr>
<tr>
<td></td>
<td>even if the work is finished very early</td>
<td>1.03</td>
<td>1.14</td>
</tr>
<tr>
<td>6.</td>
<td>Prolonging the intermissions (break times)</td>
<td>2.19</td>
<td>2.77</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.00</td>
<td>1.09</td>
</tr>
<tr>
<td>7.</td>
<td>Disappearing upon arriving at school</td>
<td>1.39</td>
<td>1.75</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.66</td>
<td>0.82</td>
</tr>
<tr>
<td>8.</td>
<td>Not participating in in-service trainings, seminars and symposia</td>
<td>1.85</td>
<td>2.43</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.96</td>
<td>1.10</td>
</tr>
<tr>
<td></td>
<td>Mean of Scale</td>
<td>1.74</td>
<td>2.15</td>
</tr>
</tbody>
</table>

As seen in Table 1, statements with the highest level of agreement of teachers and school administrators in the dimension of physical withdrawal behaviors largely overlap with each other. The statement “prolonging the intermissions (break times)” has comparably the highest level of agreement of both groups. Also, the statement “not participating in in-service trainings, seminars and symposia” are among the three statements with the highest-level of agreement of both teachers and administrators.

A Comparison of the Teacher and Administrator Views on Teachers’ Physical Withdrawal Behaviors Based on Independent Variables

Findings regarding the gender variable. There is no significant variance between the teacher views \( t(377)=.58; p>.05 \) and the administrator views \( t(196)=.41; p>.05 \) on teachers’ physical withdrawal behaviors based on the gender variable.

Findings regarding the seniority variable. There is no significant variance among the administrator views \( F(2, 195)= .70, p>.05 \) on teachers’ physical withdrawal behaviors based on the seniority variable. However, there is a significant variance found among the teacher views \( x^2 (2) = 6.88, p<.05 \) on teachers’ physical withdrawal behaviors based on the seniority variable. The Mann Whitney U test was conducted between the groups to identify which groups had variance between them.
Accordingly, a significant variance was identified between the views of the teachers with 6-20 years of service and the teachers with 21 years or more of service (U=13165.500, p<.05). According to the results of the analysis, the teachers with 6-20 years of service withdraw from work significantly more than the teachers with 21 years or more of service do.

Findings regarding the education degree variable. The teacher views \( \chi^2(2) = 3.69, p>.05 \) and the administrator views \( \chi^2(2)=1.52, p>.05 \) on teachers’ physical withdrawal behaviors do not significantly vary based on the education degree variable.

Findings Regarding Teachers’ Psychological Withdrawal Behaviors

Arithmetic mean and standard deviation values of the teacher and administrator views on teachers’ psychological withdrawal behaviors are presented in Table 2.

Table 2.

Arithmetic Mean and Standard Deviation Values of the Teacher and Administrator Views on the Dimension of Teachers’ Psychological Withdrawal Behaviors

<table>
<thead>
<tr>
<th>No.</th>
<th>Scale Item</th>
<th>Teachers</th>
<th>Administrators</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Being occupied with irrelevant things at school and during a class session</td>
<td>1.61 .82</td>
<td>1.96 .80</td>
</tr>
<tr>
<td>2.</td>
<td>Surfing the web</td>
<td>1.49 .85</td>
<td>1.95 .94</td>
</tr>
<tr>
<td>3.</td>
<td>Showing effort to look busy even when not</td>
<td>1.55 .80</td>
<td>1.92 .88</td>
</tr>
<tr>
<td>4.</td>
<td>Chatting with colleagues during work hours</td>
<td>1.75 .90</td>
<td>2.32 .97</td>
</tr>
<tr>
<td>5.</td>
<td>Constantly checking the time</td>
<td>1.52 .78</td>
<td>1.92 .98</td>
</tr>
<tr>
<td>6.</td>
<td>Doing personal business during class</td>
<td>1.50 .84</td>
<td>1.85 .85</td>
</tr>
<tr>
<td>7.</td>
<td>Making long personal calls at school</td>
<td>1.65 .87</td>
<td>2.15 .90</td>
</tr>
<tr>
<td>8.</td>
<td>Showing less effort than normal at school or during class</td>
<td>1.70 .90</td>
<td>2.17 .93</td>
</tr>
<tr>
<td>9.</td>
<td>Coming to class unprepared</td>
<td>1.84 .89</td>
<td>2.23 .94</td>
</tr>
<tr>
<td>10.</td>
<td>Leaving students idle during class</td>
<td>1.69 .86</td>
<td>2.00 .82</td>
</tr>
<tr>
<td>11.</td>
<td>Having others do their own work</td>
<td>1.74 .94</td>
<td>2.13 .93</td>
</tr>
<tr>
<td>12.</td>
<td>Expressing intent to leave school or teaching profession at every opportunity</td>
<td>1.87 1.03</td>
<td>1.96 1.01</td>
</tr>
<tr>
<td></td>
<td>Mean of Scale</td>
<td>1.66</td>
<td>2.05</td>
</tr>
</tbody>
</table>
According to Table 2, while the statement with the highest level of agreement of the teachers with respect to their psychological withdrawal behaviors is “expressing intent to leave school and teaching profession at every opportunity,” the statement with the highest level of agreement of the school administrators in this dimension is “showing less effort than normal at school and during class.” Also, the statements with comparatively the highest level of mutual agreement among the teachers and the school administrators in this dimension are “coming to class unprepared” and “chatting with colleagues during work hours.”

A Comparison of Teacher and Administrator Views on Teachers’ Psychological Withdrawal Behaviors Based on Independent Variables

Findings regarding the gender variable. There is no significant variance observed between the teacher views \(t(369)=.69; \ p>.05\) and the school administrator views \(t(196)=.41; \ p>.05\) on teachers’ psychological withdrawal behaviors based on the gender variable.

Findings regarding the seniority variable. The teacher views \(x^2 (2) = 4.15, \ p>.05\) and administrator views \(F(2,195)= .78, \ p>.05\) on teachers’ physical withdrawal behaviors do not significantly vary based on the seniority variable.

Findings regarding the education degree variable. There is no significant variance between the teacher views \(x^2 (2) = 3.29, \ p>.05\) and the school administrator views \(x^2 (2) = 4.65, \ p>.05\) on teachers’ psychological withdrawal behaviors based on the educational degree variable.

Qualitative Findings Regarding Teachers’ Behaviors of Withdrawal from Work

When the views on physical and psychological withdrawal behaviors during the teacher interviews are examined together, the behaviors of withdrawal from work exhibited by teachers can be summarized as in Figure 2.

![Figure 2. Behaviors of Withdrawal from Work According to the Teacher Views](image)
As understood from Figure 2, while the physical withdrawal behavior relatively most commonly exhibited by the teachers, according to the teacher views, is coming late to class (%46), the psychological withdrawal behavior relatively most commonly exhibited by the teachers is showing a low performance (%50). Similarly, also in the quantitative findings, the physical withdrawal behavior with the highest level of agreement from the teachers and the school administrators is “prolonging the intermissions (break times),” which is parallel to coming late to class. Of the psychological withdrawal behaviors, “showing less effort than normal at school and during class” and “coming late to class,” which are related to showing a low performance, are agreed on.

During the interviews with the school administrators, of the views on teachers’ behaviors of withdrawal from work, those on physical withdrawal behaviors are grouped under the titles of taking leave and sick leave (f= 7), absenteeism (f= 5), coming late to class (f= 5) and turnover (f= 2), respectively. The school administrator views on teachers’ psychological withdrawal behaviors are, similar to the teacher views, grouped under the titles of showing a low performance (f= 7), reluctance to participate in activities (f= 7), apathy (f= 3) and other views (f= 3).

Findings Regarding the Relationship between Teachers’ Behaviors of Withdrawal from Work and Work Ethics

This title includes analyses of the relationship between teachers’ behaviors of withdrawal from work and work ethics.

The Relationship Between Teachers’ Physical Withdrawal Behaviors and Work Ethics

For the purpose of identifying the relationship between teachers’ physical withdrawal behaviors and work ethics, the Spearman-Brown Rank Orders correlation coefficient was first calculated to determine the relationship of the physical withdrawal behaviors and the work-oriented sub-dimensions. The results of the analysis are presented in Table 3.

As seen from Table 3, while there is no significant relationship between the physical withdrawal behaviors and the work-oriented sub-dimensions of work discipline (r=-.10, p>.05) and integration with work (r=.03, p>.05), there is a low level of significant negative relationship between dedication to work (r= -.21, p<.05) and commitment to duty (r= -.11, p<.05).

For the purpose of identifying the relationship between the physical withdrawal behaviors and the other delight-oriented dimension of work ethics, the results of the Spearman-Brown Rank Orders correlation coefficient with respect to identifying the relationship between the physical withdrawal behaviors and the delight-oriented sub-dimensions are presented in Table 4.
Table 3.
Spearman-Brown Rank Orders Correlation Coefficient Results for the Physical Withdrawal Behaviors and the Work-Oriented Dimensions

<table>
<thead>
<tr>
<th>Variables</th>
<th>Physical Withdrawal Behaviors</th>
<th>Commitment to Work</th>
<th>Work Discipline</th>
<th>Commitment to Duty</th>
<th>Integration with Work</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Withdrawal Behaviors</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dedication to Work</td>
<td>-.21*</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work Discipline</td>
<td>-.10</td>
<td>.26**</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commitment to Duty</td>
<td>-.11*</td>
<td>.09</td>
<td>.46**</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Integration with Work</td>
<td>-.03</td>
<td>.32**</td>
<td>.14**</td>
<td>.19**</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Table 4.
Spearman-Brown Rank Orders Correlation Coefficient Results for the Physical Withdrawal Behaviors and the Delight-Oriented Dimensions

<table>
<thead>
<tr>
<th>Variables</th>
<th>Physical Withdrawal Behaviors</th>
<th>Attributing Success to External Factors</th>
<th>Living the Moment</th>
<th>Utilitarianism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Withdrawal Behaviors</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attributing Success to External Factors</td>
<td>.13*</td>
<td></td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Living the Moment</td>
<td>.00</td>
<td>.35**</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Utilitarianism</td>
<td>.07</td>
<td>.47**</td>
<td>.42**</td>
<td>1.00</td>
</tr>
</tbody>
</table>

As seen in Table 4, there is no significant relationship between the physical withdrawal behaviors and the delight-oriented sub-dimensions of living the moment (r=.00, p>.05) and utilitarianism (r=.07, p>.05). However, a low level of significant positive relationship was found between the physical withdrawal behaviors and the dimension of attributing success to external factors (r=.13, p<.05).

The Relationship between Teachers’ Psychological Withdrawal Behaviors and Work Ethics

For the purpose of identifying the relationship between teachers’ psychological withdrawal behaviors and work ethics, the Spearman-Brown Rank Orders correlation coefficient was first calculated to determine the relationship of the psychological withdrawal behaviors and the sub-dimensions of work-oriented behaviors. The results of the analysis are presented in Table 5.
Table 5.
Spearman-Brown Rank Orders Correlation Coefficient Results for the Psychological Withdrawal Behaviors and the Dimensions of Work-Oriented Behaviors

<table>
<thead>
<tr>
<th>Variables</th>
<th>Psychological Withdrawal Behaviors</th>
<th>Dedication to Work</th>
<th>Work Discipline</th>
<th>Commitment to Duty</th>
<th>Integration with Work</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychological Withdrawal Behaviors</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dedication to Work</td>
<td>-.25**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work Discipline</td>
<td>-.06</td>
<td>.26**</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commitment to Duty</td>
<td>-.13*</td>
<td>.09</td>
<td>.46**</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Integration with Work</td>
<td>-.00</td>
<td>.32**</td>
<td>.14**</td>
<td>.19**</td>
<td>1.00</td>
</tr>
</tbody>
</table>

As seen from Table 5, while there is no significant relationship between teachers’ psychological withdrawal behaviors and the work-oriented sub-dimensions of work discipline (r=-.06, p>.05) and integration with work (r=.00, p>.05), there is a low level of significant negative relationship between dedication to work (r= -.25, p<.05) and commitment to duty (r=-.13, p<.05).

For the purpose of identifying the relationship between the psychological withdrawal behaviors and the other dimension of delight-oriented work ethics, the results of the Spearman-Brown Rank Orders correlation coefficient with respect to identifying the relationship between such withdrawal behaviors and the sub-dimensions of delight-oriented behaviors are provided in Table 6.

Table 6
Spearman-Brown Rank Orders Correlation Coefficient Results for the Psychological Withdrawal Behaviors and the Dimensions of Delight-Oriented Behaviors

<table>
<thead>
<tr>
<th>Variables</th>
<th>Psychological Withdrawal Behaviors</th>
<th>Attributing Success to External Factors</th>
<th>Living the Moment</th>
<th>Utilitarianism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychological Withdrawal Behaviors</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attributing Success to External Factors</td>
<td>.19*</td>
<td></td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Living the Moment</td>
<td>.03</td>
<td>.35**</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Utilitarianism</td>
<td>.17*</td>
<td>.47**</td>
<td>.42**</td>
<td>1.00</td>
</tr>
</tbody>
</table>

As seen from Table 6, there is no significant relationship between the physical withdrawal behaviors and the work-oriented sub-dimension of leaving the moment (r=.03 p>.05). However, a low level of significant positive relationship was
found between the psychological withdrawal behaviors and the sub-dimensions of attributing success to external factors ($r=.19, p<.05$) and utilitarianism ($r=.17, p<.05$) of delight-oriented behaviors.

**Discussion and Conclusion**

The low level of agreement of the teachers and the administrators in the statements, including those on physical and psychological withdrawal behaviors, suggests that teachers do not completely withdraw from work. In other words, according to the research findings, it can be suggested that teachers seldom exhibit behaviors of both physical and psychological withdrawal from work, and therefore that they do not take a complete dislike to their profession. However, taking into account that this study was conducted based on teachers' perceptions, the results are probably a natural outcome of social admiration.

One of the reasons why teachers exhibit behaviors considered withdrawal from work at a low level is that a large portion of teacher behaviors are required by laws. For instance, “behavior of not participating in planned school meetings (group meetings, parent meetings, etc.), and ceremonies,” which has the lowest level of agreement from the teachers and the administrators, is regulated by the “Regulation of the Ministry of National Education for Pre-School Education and Elementary Education Institutions.” According to article 43 in the section “Prohibitions” of the regulation, teachers are obliged to be present in any official meeting and on local liberation days as well as national days (MoNE, 2014b). According to this, any teacher exhibiting such behavior may probably face a disciplinary action. Teachers, reluctant to face such possible outcomes, may exhibit the required behavior, though reluctantly.

Of the teacher’s physical withdrawal behaviors, prolonging the intermissions between the class sessions is the most common. This behavior is followed by not participating in in-service trainings, seminars, and symposia. As a psychological withdrawal behavior, the most common, according to the teachers, is expressing the intent to leave the school or profession at every opportunity, i.e. the intent to quit the job. According to the school administrators, teachers psychologically withdraw from work by chatting with their colleagues during work hours.

There is no significant variance between the teacher views and the school administrator views in the dimension of physical withdrawal behaviors with respect to the gender and education degree variables. Also, in the study conducted by SehBaradar, Ebrahimpour, and Hasanzadeh (2013), the mean of the female employees’ withdrawal behaviors ($M=42.23$) and that of the male employees’ withdrawal behaviors ($M=43.75$) appear to be close. However, Shockley (2012), who investigated teachers’ behavior of absence as a physical withdrawal behavior, concluded that teachers’ behavior of absence significantly varied in respect of gender and that female employees exhibited the behavior of absence more compared to the male employees.

The seniority variable, not leading to a variance among the administrator views on teachers’ physical withdrawal behaviors, leads to a significant variance among the
teachers’ views. According to the present study, teachers with 6-20 years of service feel that they withdraw from work more than the teachers with 21 years or more of service do. SehBaradar, Ebrahimpour, and Hasanzadeh (2013) found that employees with 11-20 years of service had a higher mean of withdrawal behaviors compared to employees in other seniority groups. As seen, these findings appear to be similar to the findings of the present study. There is no significant variance between the teacher and the school administrator views in the dimension of psychological withdrawal behaviors with respect to gender and education degree variable.

There is no significant relationship between the teachers’ physical withdrawal behaviors and the dimensions of work discipline and integration with work of work-oriented behaviors. However, the work-oriented sub-dimensions of dedication to work and commitment to duty have a low but significant negative relationship with the physical withdrawal behaviors. Accordingly, employees who are responsible and committed to work may exhibit a lower level of physical withdrawal behaviors.

Similarly, Bayram (2005) argues that the more the employees’ feelings of commitment increase, the less unfavored behaviors, such as tardiness, absenteeism, and quitting work will be exhibited. Also, the studies suggest that any decrease in puritan work ethics, which include the dimensions of dedication to work and commitment to duty, leads to an increase in physical withdrawal behaviors, such as absenteeism and turnover (as cited by Miller, Woehr & Hudspeth, 2001). Based on these findings, it may be suggested that teachers’ positive attitudes, or in other words their being focused on work, have an important role in decreasing their physical withdrawal behaviors.

There is no significant relationship between the teachers’ physical withdrawal behaviors and the delight-oriented dimensions of living the moment and utilitarianism. However, there is a low level of significant positive relationship between the physical withdrawal behaviors and the dimension of attributing success to external factors. Therefore, it may be suggested that employees who believe that personal connections and luck have a stronger role in success than working shall exhibit a high level of physical withdrawal behaviors.

There is no significant relationship between the teachers’ psychological withdrawal behaviors and the work-oriented sub-dimensions of work discipline and integration with work; however, there is a significant negative relationship between the sub-dimension of dedication to work and commitment to duty. According to the research findings, employees who are dedicated to work, place work in the center of their lives, and are committed to duty rarely exhibit psychological withdrawal behaviors. In other words, a decrease in teachers’ ethical values such as dedication to work and commitment to duty leads to an increase in their physical and psychological withdrawal behaviors. In fact, Yandle (1992; as cited by Miller, Woehr & Hudspeth, 2001) suggests that a decrease in puritan work ethics will lead to an increase in the behavior of showing low performance, which is considered a psychological withdrawal behavior.

There is no significant relationship between the psychological withdrawal behaviors and the delight-oriented dimension of living the moment. On the other
hand, a significant positive relationship was found between the psychological withdrawal behaviors and the delight-oriented sub-dimensions of attributing success to external factors and utilitarianism of the dimension. Based on this, it may be suggested that the higher the level of teachers’ adoption of hedonist work ethics, such as attributing success to external factors and utilitarianism, is, the higher the level of exhibiting psychological withdrawal behavior will be. In other words, employees who believe that success does not result from hard work, but external factors, take advantage of each day with a pragmatic approach, and those who believe that a high salary is more important than a career exhibit psychological withdrawal behaviors more.

To conclude, the research findings reveal a significant negative relationship between the work-oriented sub-dimensions, which are dedication to work and commitment to duty, and both physical and psychological withdrawal behaviors. Therefore, for decreasing the teachers’ physical and psychological withdrawal behaviors, it must be ensured that they adopt puritan ethical values including dedication to work and commitment to duty. With this in mind, in order for teachers to care their works and profession more and fulfill their duties with care, school administrators must ensure that teachers feel trusted and valued to allow them to take more initiative in school activities.

Taking into consideration that withdrawal behaviors occur depending on many inter-related factors, research must be conducted to investigate the relationship of these behaviors with different organizational behavior topics, such as job satisfaction, organizational commitment, organizational dedication, organizational support perception, and organizational citizenship. In addition, the present study aimed to determine the physical and psychological withdrawal behaviors of elementary school teachers. Also, such behaviors should be studied on subject matter teachers or at secondary education institutions.

References


Problem Durumu: İnsanlar çalışma hayatlarının farklı dönemlerinde değişik nedenlerden dolayı iş doyumu ve motivasyon düzeylerinde inşiler ve çıkarlıklar yaşamaktadırlar. İş doyumu ve motivasyon düşüklüğünün çıktılarından biri de alan yazında “işten geri çekilme” olarak tanımlanmaktadır. İşletmelerde olduğu gibi eğitim örgütlerinde ise bu durum, çalışan ve örgüt arasında bir soğukluğun oluşması sonucu, çalışanların görev ve sorumluluklarından uzaklaşmış her türlü davranıştır. İşten geri çekilme davranışları alan yazında genellikle fiziksel ve psikolojik geri çekilme davranışları olarak iki boyutta öne çıkar. Bu davranışların eğitim örgütlerinde incelenmesi önemlidir. Çalışan ve örgüt arasındaki soğukluk sonucu, çalışanların değerlendirmelerini daha etkili ve başarılı bir şekilde yapmaları bakımından faydal olacaktır. Ayrıca öğretmenlerin yaptığı geri çekilme davranışlarının öğrencilere olumsuz etkiler yarattığı düşündüğünde eğitimin kalitesi bakımından da bu davranışların incelenmesi önemlidir.

Araştırmanın Amacı: Bu çalışmada kamu ilkokullarda görev yapan öğretmenlerin ve okul yöneticilerinin görüşlerine göre, öğretmenlerin işten geri çekilme davranış biçimlerinin belirlenmesi ve çalışma etiği değerlerini ararsızdaki ilişkisinin belirlenmesi amaçlanmıştır. Çalışmada işten geri çekilme davranışları fiziksel ve psikolojik boyutlarda ele alınarak incelenmiştir.

Araştırmanın Yöntemi: Tekil ve ilişkisel taraflı analitik modeli ile desenlenen araştırma karma araştırma yöntemi ile gerçekleştirilmiştir. Araştırmanın nicel boyutundaki


Anahtar Kelimeler: Fiziksel geri çekilme, psikolojik geri çekilme, çalışma etiği, iş doyumu, motivasyon, öğretmenler.
Integration of Media Design Processes in Science, Technology, Engineering, and Mathematics (STEM) Education

Engin KARAHAN*
Sedef CANBAZOGLU BILICI**
Aycin UNAL***

Suggested Citation:
Doi: 10.14689/ejer.2015.60.15

Abstract

Problem Statement: Science, technology, engineering and mathematics (STEM) education aims at improving students' knowledge and skills in science and math, and thus their attitudes and career choices in these areas. The ultimate goal in STEM education is to create scientifically literate individuals who can survive in the global economy. The identification of new learning outcomes, curriculum programs, and teaching practices needs to be clarified by the STEM education community. Media design processes are a potential teaching method in STEM education that requires learners to design digital media artifacts using a variety of technological tools.

Purpose of the Study: This study investigates the impact of science, technology, engineering, and mathematics (STEM) integrated media design processes on 8th grade students' attitudes toward science and technology classes, as well as their views about these design processes in after-school science activities. In addition, it demonstrates the opinions of the classroom teacher regarding the integration of media design processes in science classes.

Method: Using an action research design, 21 secondary students from a public school participated in this 14-week study. The quantitative data that was collected from the student attitude survey for science and technology classes was analyzed using the Wilcoxon signed-rank test.

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while the qualitative data (student artifacts, PSA forms, semi-structured interviews, and field notes) was analyzed through open coding and thematic analysis respectively.

Findings and Results: The findings indicated that STEM-integrated media design processes positively impacted the participating students’ attitudes toward science and media design activities. In addition, students were more motivated and engaged in the media design processes, which improved their learning of science content and participation in class discussions.

Conclusion and Recommendations: The literature in STEM education calls for new curricular activities and teaching practices as well as the integration of art in STEM. In addition, the visual technology industry in this century creates a job market for the STEM-literate people who are able to apply their knowledge of STEM fields in visual technologies and art. In response to these demands, the positive outcomes of media design processes used in this study offer an encouraging premise in meeting the objectives of STEM education.

Keywords: science, technology, engineering, and mathematics (STEM) education, media design, public service announcements (PSAs), action research, after-school activities
educational community. Media design processes are one potential teaching practice in STEM education that require learners to design digital media artifacts by using a variety of technology tools (Liu, 2003). Media design helps students learn complex concepts and apply these concepts in a meaningful way (Lambert & McCombs, 1998). In addition, it helps students improve their problem solving, analysis, creative thinking, and social skills (Bates, 2000) as well as their conceptual knowledge (Newstetter, 2000) and motivation and engagement in learning processes (Karahan & Roehrig, 2014).

Current technologies can create different paths for the integration of media design processes in education. Public service announcements, digital storytelling, and animations are examples of media design usage in education. Public service announcements (PSAs) have been used in education to make students aware of social and environmental issues (Lester, Ma, Lee, & Lambert, 2006). In this study, students created PSAs for the purpose of informing people about specific science concepts and strengthening the relationship between their school and community. Based on Bybee’s (2013) suggestions for extending the range of STEM activities, the potential of visual arts in STEM career options and the processes that are common in both engineering and media design were reviewed and integrated into science and STEM learning. Some of the similarities between engineering and media design processes in the context of STEM include using real world contexts, following design stages, introducing design constraints, and using team work and cooperative learning skills throughout the design processes.

In this study, we investigated the impact of STEM-integrated media design processes on 8th grade students’ attitudes toward science and technology classes. In addition, the science teacher and her students’ views about designing media products in after-school science activities were included. The specific research questions that guided this study were:

- Is there a significant difference between 8th grade students’ science and technology attitude scores on pre- and post-surveys implemented before and after STEM-integrated media design processes?
- What are the participating students’ opinions about the use of STEM-integrated media design activities in science classes?
- What are the classroom teacher’s opinions about the integration of media design activities in science classes?

**Methods**

**Research Design**

This study employed an action research design in which one of the researchers planned and implemented the study in the fall and spring semesters of the 2013-2014 academic year. Mills (2003) described action research as a type of research where a teacher or school principal investigates teaching practices, learning outcomes, or
administrative actions in a systematic way. A 14-week action plan was designed based on Sagor’s (2005) four-stage process for action research. These four stages involve clarifying vision, articulating theories, implementing action and collecting data, and reflecting and planning informed action.

Table 1.

<table>
<thead>
<tr>
<th>Week</th>
<th>Content</th>
</tr>
</thead>
</table>
| Week I | • Deciding on the study sample  
| | • Organizing a meeting for informing participating students about media design processes and PSAs  
| | • Implementing a pre-survey to determine participant students’ attitudes toward science and technology class |
| Week II | • Assigning design groups for PSA projects  
| | • Distributing PSA directions for a cell division and genetics unit |
| Week III | • Writing PSA scenarios about the cell division and genetics unit |
| Week IV | • Designing PSAs regarding the cell division and genetics unit |
| Week V | • Presenting and peer-evaluating the PSAs about the cell division and genetics unit |
| Week VI | • Distributing PSA directions for a force and motion unit |
| Week VII | • Writing PSA scenarios about the force and motion unit |
| Week VIII | • Designing PSAs about the force and motion unit |
| Week IX | • Presenting and peer-evaluating the PSAs about the force and motion unit |
| Week X | • Distributing PSA directions for a structure of matter unit |
| Week XI | • Writing PSA scenarios about the structure of matter unit |
| Week XII | • Designing PSAs about the structure of matter unit |
| Week XIII | • Presenting and peer-evaluating the PSAs about the structure of matter unit |
| Week XIV | • Conducting semi-structured interviews with the participating students  
| | • Conducting a semi-structured interview with the science teacher  
| | • Implementing a post-survey to determine the participant students’ attitudes toward science and technology class |

Student groups designed their PSAs on the subject of cell division and genetics and force and motion units in the fall semester, while the structure of matter was the
unit they used in the spring semester. After designing their PSAs, the groups presented their projects to receive feedback from their peers and the teacher. The last week of the study was dedicated to data collection.

Research Sample

Data was collected from a convenience sample of 21 8th graders (16 girls, 5 boys). The study site was a public school located in a low socio-economic community in Turkey. The first week of the study was dedicated to determining the students who volunteered to participate in the study. The participants were allowed to decide their own groups as the groups worked together during after-school hours to design their PSA projects.

Research Instruments and Procedures

Six main tools were used to collect the data of the study: student attitude survey for science and technology class, student designed media artifacts, PSA forms, semi-structured student interviews, semi-structured teacher interview, and field notes. Each data collection tool is described in detail below.

Student Attitude Survey for Science and Technology Class. In this study, the student attitude survey for science and technology class developed by Nuhoglu (2008) was used. The original survey includes eleven items for measuring student attitudes toward science and technology class and nine items to determine their attitudes toward the activities in the class. Since PSA design was the focus of this study, we specifically focused on the term PSA in the survey, instead of a more general term such as activity. The Cronbach Alpha reliability coefficient value was .72 for the pre-survey and .75 for the post-survey.

Student Media Artifacts. During the academic year, participants designed their media projects on the topics of cell division and genetics, force and motion, and the structure of matter. Following the constructionist design steps, which are planning, designing, testing, redesigning, and presenting (Harel, 1991; Kafai, 2005), the students designed their projects by using the elements of popular culture in which they live. In the planning phase, the design teams researched the focus of their projects and wrote the scenarios that guided their projects. While conducting research about the scientific concepts they wanted to address in their projects, they also discussed how to integrate them in their projects in a way that could be easily understood by their audience. They also completed their media design forms in this phase. The following phase, designing, was dedicated to filming their videos based on the scenarios they wrote and manipulating these multimedia materials by using a particular design software. In the testing phase, the design teams viewed their projects in order to decide if there was any need for improvement. Next, in the redesigning phase, they made changes in their projects based on what they determined needed improvement. Lastly, they presented their media projects in the classroom with follow-up discussions led by the teacher.

Media Design Forms. The design teams filled out media design forms before they started designing their projects in order to plan and structure them. The media
design forms included the driving questions, which asked them to describe the audience they targeted, the message they wanted to convey in their projects, the processes they planned to follow in designing their projects, and the timeline they created for their work. The answers provided on these forms gave the researchers an idea about the experiences they had during the design process.

**Semi-Structured Interviews.** Two different semi-structured interview protocols were used to conduct interviews with both the teacher and her students. In the semi-structured student interview, eight open-ended questions addressed the experiences in the media design processes. These included the challenges faced, the way in which those challenges were handled, the impact of media design processes on their conceptual learning, the advantages and disadvantages of media design activities, and their opinions about integrating media design activities in different subjects. The semi-structured interview protocol for the teacher involved four open-ended questions to reveal the strategies she used in the media design processes, the challenges she faced in design processes and the ways in which she handled those challenges, her opinions about integrating media design processes in her science classes, and the modifications she planned to do in case she would use media design activities in her future classes.

**Field Notes.** Throughout the academic year, the teacher took notes about her experiences and those of the participant students based on her observations in the media design processes. These field notes provided a reflective balance with the statements of the students. This data was particularly used for triangulation purposes.

**Data Analysis**

The quantitative data collected from the student attitude survey for the science and technology class was analyzed by using the Wilcoxon signed-rank test on Statistical Package for the Social Sciences (SPSS) 15.0 program because the sample size was smaller than 30 and differences in scores did not show a normal distribution. The method of qualitative data analysis in this study involved the following steps: (1) open coding (Strauss & Corbin, 1990), (2) identification of patterns and categories (LeCompte & Preissle, 1993), and (3) building themes and models for cross-case analysis (Miles & Huberman, 1994). The open coding process attempted to organize data sources by looking at the words that frequently emerged. After gathering all the open codes, main ideas emerged as patterns. The researchers used these main ideas to identify the patterns that represented participants’ opinions about the media design processes. Lastly, the researchers examined all the patterns in the categories to determine themes. Based on the themes that emerged, the relationship model was built.
Results

I. The Impact on Participant Students’ Attitudes toward Science and Technology Class

A student attitude survey for the science and technology class was implemented before and after the media design activities. Averaging across participant, the mean to the pre-test score was less than that of the post-test score. The means and standard deviations of these scores are given in Table 2.

Table 2. Wilcoxon Signed-rank Test Results

<table>
<thead>
<tr>
<th>Pre- and Post-test</th>
<th>N</th>
<th>Mean Rank</th>
<th>Sum of Ranks</th>
<th>Z</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative Ranks</td>
<td>4</td>
<td>8.50</td>
<td>34</td>
<td>2.84</td>
<td>.004*</td>
</tr>
<tr>
<td>Positive Ranks</td>
<td>17</td>
<td>11.59</td>
<td>197.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ties</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Based on negative ranks

The differences as shown in Table 2 were analyzed by using the Wilcoxon signed-rank test. The results are presented in Table 3 below.

Table 3. Attitude Scores to Pre and Post Survey

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-survey</td>
<td>27.09</td>
<td>5.84</td>
</tr>
<tr>
<td>Post-survey</td>
<td>30.90</td>
<td>2.14</td>
</tr>
</tbody>
</table>

As seen in Table 3, there was a statistically significant difference between the participant students’ pre- and post-test scores on the attitude survey that was implemented before and after their participation in STEM-based media design activities (T=34, Z = -2.84, p = 0.004). In order to find the degree of difference between the pre- and post-test survey scores, which is also called the effect size, the eta-square coefficient ($\eta^2$) was calculated and found to be .62. The eta-square coefficient ($\eta^2$) value between 0-1 shows the variance rate of the independent variable in dependent variables. The value of “.01” is generally considered low; “.06” medium and “.14” high impact (Cohen, 1988 cited in Pallant, 2005, p. 201). Therefore, it was concluded that the use of PSA design activities in science and technology class had a significant impact on students’ attitude scores.

II. Participant Students’ Opinions about the Use of PSA Design Activities in Science and Technology Classes
The themes emerged based on the open coding processes of the data are shown in Table 4. The model in Figure 1 was created through eliciting the relationships among these codes by using axial coding. These themes are presented with the direct quotes from the students.

**Table 4.**

*The Frequency Table of Codes*

<table>
<thead>
<tr>
<th>Codes</th>
<th>Number of students in which the code was observed</th>
<th>Frequency of codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning science content</td>
<td>19</td>
<td>67</td>
</tr>
<tr>
<td>Revisiting content and strengthening learning</td>
<td>17</td>
<td>51</td>
</tr>
<tr>
<td>Team work</td>
<td>20</td>
<td>43</td>
</tr>
<tr>
<td>Differences from other science activities</td>
<td>17</td>
<td>41</td>
</tr>
<tr>
<td>Role of teacher</td>
<td>21</td>
<td>41</td>
</tr>
<tr>
<td>Having fun while learning</td>
<td>15</td>
<td>39</td>
</tr>
<tr>
<td>Social skills</td>
<td>18</td>
<td>33</td>
</tr>
<tr>
<td>Constraints and challenges</td>
<td>19</td>
<td>32</td>
</tr>
<tr>
<td>Impact on academic success</td>
<td>18</td>
<td>31</td>
</tr>
<tr>
<td>Use of resources</td>
<td>21</td>
<td>28</td>
</tr>
<tr>
<td>Correcting misconceptions</td>
<td>14</td>
<td>25</td>
</tr>
<tr>
<td>Self-awareness</td>
<td>11</td>
<td>15</td>
</tr>
<tr>
<td>Problem-solving skills</td>
<td>12</td>
<td>15</td>
</tr>
<tr>
<td>Increased active participation</td>
<td>10</td>
<td>14</td>
</tr>
<tr>
<td>Deciding criteria</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>Creativity</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Understanding the role of science in the real world</td>
<td>2</td>
<td>5</td>
</tr>
</tbody>
</table>

As shown in Table 4, the most frequently observed codes in the student data were *learning science content, revisiting content and strengthening learning,* and *teamwork,* whereas the least frequent codes were *deciding criteria, creativity,* and *understanding*
the role of science in the real world. Using axial coding and thematic analysis processes, the model presented the relationships among the codes and is shown below (Figure 1). In this model, each color represents a group with similar themes, while the one-way and two-way arrows between themes show the relationships among the themes they connect. Additionally, the sizes of the themes in the model represent the frequencies of these themes.

![Figure 1. The Relationship Model between Themes based on Open and Axial Coding](image)

In the qualitative analysis model (see Figure 1), the themes of learning science content, correcting misconceptions, revisiting content and strengthening learning, and understanding the role of science in real world were the most dominant themes in the first group of themes. In addition, having fun while learning, increased active participation, and difference from other science activities were the dominant themes in another group of themes. The connection arrows between the themes in this group shows that there was a relationship between the themes of having fun while learning and increased active participation, thus indicating a difference of PSA design activities from other science activities.

The data analysis showed that the most frequently repeated code was learning science content, which was commonly associated with the codes correcting misconceptions, revisiting content and strengthening learning, and understanding the role of science in real world. Almost all participants (n=19) stated that PSA design activities positively impacted their learning of science content. In addition, they highlighted the role of after-school PSA design activities on revisiting the content they learned in
class, as well as on learning the content they were not able to previously. Hence, they believed that PSA design activities directly impacted their academic success.

*Designing PSA projects in science classes has many benefits, because if students could not understand the topic in the class, they understood the topic better when they watched the PSAs. For instance, I could not understand cell division, but I got it when I watched the PSAs.* (Student 7)

*I used to have a hard time while taking tests. I used to answer the questions without knowing the concepts and the meaning of the words. But, while correcting our misconceptions through PSAs, we strengthened our understanding of these true concepts.* (Student 8)

*For instance, we sometimes misunderstand something in the class or learned something wrong, but my friends corrected me several times while working on our PSA projects. It helped us understand science and conceptualize the science units better.* (Student 13)

*I don’t think there were any disadvantages, but several benefits of using PSAs in science classes. For example, it helped us for the central exam a lot as well as our participation in science classes.* (Student 17)

In addition to learning science, students also highlighted the positive impact of PSA design activities on their participation in science classes. While designing PSAs, students were able to spend more time on learning science and in understanding the points they missed in the class due to the limited class time. Factors, such as following an extensive curriculum in a limited time and crowded classroom, that cause teachers to be unable to help individual students enough, were balanced by designing PSA projects after school hours. This gave students the opportunity to learn science in an extended timeframe, thus allowing for more active participation in science classes.

*In other classes, we spend very limited time on the topics. However, while designing PSAs, we have more than enough time to focus on each topic. Science classes are important, but PSA activities help us understand better.* (Student 2)

*We did not have enough time to have a voice all the time, but we cooperated very well and said what we wanted to say in PSA activities. We learned something we did not know all the time, and we learned the concepts we were confused about with the help of our teacher and friends.* (Student 6)

*Sometimes, we could not understand in the class because it is too crowded. But, watching PSAs helped us due to the fact that they gave real examples from our own lives.* (Student 12)

*We learned science and participated in the class discussions more. For example, I did not know adaptation, but then I learned it from the PSAs and I participated in discussions about it in the class more.* (Student 16)

In addition to the positive impact of media design activities on their academic achievement, the participant students also highlighted the role of media design activities on improving their personal and social skills. They stated that they worked
as a team in designing their projects and solving the problems they faced during the media design processes. The students added that they positively impacted each other’s learning. As it is strongly emphasized in cooperative learning studies, students highlighted the interactions with their peers more than their teacher’s role throughout the learning process. It was observed that media design processes positively impacted participant students’ opinions and motivation about group work.

In our social life outside of school, it was helpful for us. Each of us has responsibilities and we need to complete our tasks. Thus, it helps our social life. (Student 8)

Unity and solidarity. I mean we helped each other and learned from each other. (Student 18)

I had an open personality before, but it has become more and more after this semester. I love sharing and group work more now. (Student 11)

I get along with my friends better now. For instance, we work harder in a group. (Student 2)

There are many benefits of working as a group for us because all of us will be doing group work in the future. If we had worked individually, it would not have been as good. We could not have gotten as much support as we got. It is always better to work in groups. (Student 15)

The students also mentioned that they had a fun experience while learning science throughout the processes of media design. When they compared media design activities with other in-class science activities, they highlighted that they both learned the content and had fun. It is important to note that students’ statements showed a direct connection between the fun part of media design activities and its positive impact on their learning. Thus, it was concluded that students considered media design activities as an enjoyable learning experience that had a direct relationship with in-class science activities instead of considering those activities just a fun game.

We were learning science while having fun, and I got many benefits out of it. While designing PSAs, I was able to learn the concepts that I could not learn before. (Student 2)

I think PSAs are better because we do activities and leave it in the class, but we both learn and have fun in media design activities. That is why it sticks in our mind easily. The similarity is that we learn in both, but we have fun in media design. (Student 4)

There is no negative point, I think, because we do these activities and have fun. As I said, it helps us learn science and gives us a different kind of activity. (Student 13)

In addition to the interview data, the participants also filled out PSA forms where they brainstormed about the focus of their projects, their audience, concepts, and the message of their project. For instance, the group that focused on mitosis in their PSA projects wrote in their form that “we want to learn mitosis very well, and our message will be the fact that it is responsible for the growth of our body and wound healing.” In the interviews, students stated that filling out the PSA forms helped them to review the
basic content they learned in the class. Similarly, the interview and fields notes from the classroom teacher indicated that students examined and reviewed their scientific knowledge while designing PSAs.

III. Classroom Teacher’s Opinions about the Integration of Media Design Processes in Science Classes

The data derived from the teacher interview and field notes were categorized under three titles: constraints and challenges, benefits of the integration of media design processes, and suggestions for future implementation. In regard to the constraints and challenges category, the teacher stated that students had a difficult time structuring their groups and finding a time to meet after school hours. In order to help her students, the teacher organized meetings with the design groups to figure out the best way for students in groups to work together. In addition, the teacher stated that after school media design activities took a significant length of time for both the instructor and students. She added that her students specifically wanted her to be present in the environment while they wrote their scenarios that required a strong scientific frame. However, students did not want their teacher to join them while recording their videos, giving the reason that her presence made them anxious.

The teacher also addressed several benefits of media design activities, such as helping students learn the science content and noticing their misconceptions and correcting them. Especially in the processes of writing scenarios and shooting videos, group members helped each other question their scientific knowledge and improve each other’s understanding of science. Also, the discussions about the PSA projects in class improved students’ conceptual understanding, according to the teacher. She observed in the written exams that her students answered the questions by addressing specific aspects from the PSA projects.

I used to think that the strategies I used in my classes were perfect. However, I realized that even the students with high academic success had misconceptions that were revealed in media design activities. For example, we did an experiment with a turnsole paper for acids and bases. But, while observing my students in the media design activity, I realized that Student 2 did not learn it well enough. She learned it better after designing a PSA about it. (Teacher Interview)

In our conversations, students told me that they benefited from the media design activities in the written exams. They understood the content better and corrected their mistakes. (Teacher Field Notes)

Lastly, the classroom teacher stated that she wanted to integrate media design activities in her classes in the future because she thought that it would support her students’ learning and understanding of science. She also added that the parents of her students were happy with these after-school activities and enjoyed the artifacts their kids created. Based on her experiences, she suggested that the stages of scenario writing and video shooting should be conducted of the same day in order to help students focus on the content more intensely. Considering the experiences in science class, she noted that students asked to design PSA projects in different subjects, such
as math and English. Hence, media design processes could be integrated into
different subjects in which students struggle academically.

**Discussion and Conclusion**

In this 14-week action research, the participant students created PSAs based on
media design principles by using technology tools with which they had access in
their daily lives. The findings indicated that the integration of media design activities
positively impacted the participant students’ attitudes toward science and media
design activities. In a European Union (EU) funded project called ENGINEER, Cava,
Bulut, Holbrook and Rannikmae (2013) found similar results in that the use of
materials designed based on the integration of engineering design processes with
five stages (ask, imagine, plan, create, and redesign) increased the interests, skills,
and attitudes of female students.

In contrast to the studies showing that students get bored in science classes
(Delpech, 2002; Williams, Stanisstreet, Spall Boyes, & Dickson, 2003), this study
showed that the participants enjoyed the media design processes while learning the
science content and participating in the in-class discussions (Karahan & Roehrig,
2014; Bruckman & Resnick, 1995). Students asked to use similar kinds of experiences
in subjects they academically struggled with, such as math. Similarly, the classroom
teacher also noted that media design activities (writing scenarios, shooting videos,
and presenting end products) helped students learn science content and correct their
addition, she believed that there were several benefits of using media design
activities in science classes. Media design activities in which students worked in
groups resulted in strengthened communication among group members and positive
attitudes toward teamwork. These findings were consistent with Bates’ (2000) study,
which found that media design processes helped students take responsibility in
groups and obtain social skills. Similarly, Marulcu and Sungur (2012) and Sungur
Gul and Marulcu (2014) found that engineering design based lessons improved
students’ psychomotor, creative, and social thinking skills as well as created a
socially enriched learning environment.

This study has the potential to present teachers alternative ways to integrate
technology in science classes and to cope with the challenges they face in those
classes. Moreover, it has the potential to improve students’ STEM literacy skills that
(1) conceptualize STEM disciplines through learning, inquiry, and design, and (2)
create interest in STEM-related problems, such as constructive and reflective
individuals. Considering the impact of STEM-based activities on students’ career
choices in STEM-related fields, this study addresses one of the goals of the National
Science Curriculum in Turkey, which is “raising awareness about the fields of
science” (Ministry of National Education [MNE], 2013). Use of engineering design
processes in K-12 schools helps students understand science and math relationships,
improve their STEM literacy, and raise consciousness about STEM career options
Bybee (2013) highlighted that the identification of new learning outcomes, curriculum programs, and teaching practices needs to be clarified by the STEM educational community. Thus, media design processes as one of the project-based learning strategies are strong alternatives in STEM activities. Specifically, the student artifacts in the context of social or environmental problems can be shared via social networking sites, thus creating a strong student voice and strengthening the ties between school and society. The findings showed that media design activities can be used in the subjects that students struggle with such as math and English. STEM-based media design activities require participants to use only the technology tools most students have access to in their daily lives; therefore, it is a good way for transitioning to the adaptation of STEM reform in our country.

Recommendations

The visual technology industry has moved from computer graphics to digital video, which is a positive stimulator to the global economy. As per the report by the Creative Industries in the U.S., there are approximately 2.99 million people employed in jobs related to visual arts (Platz, 2007). Most of these employees not only need developed art skills, but also need the ability to apply the concepts taught in the STEM approach. STEM activities designed based on media design principles have the potential to meet the STEM-literate employment in visual technology industry.

For most people, STEM specifically addresses job opportunities and innovations in engineering fields. However, the visual technology industry in this century creates a job market for STEM-literate people who are able apply their knowledge of STEM fields to visual technologies and art. There have been several efforts to integrate art in STEM reform in different parts of the world (Robelen, 2011). This study has the potential to integrate the fields of art and STEM due to the technical and technological features of media design processes as well as the commonalities between media design and engineering design processes.

Despite the fact that STEM career options grow three times faster than others, the number of female students choosing STEM fields still stays significantly lower than male students (Milgram, 2011). To illustrate, female students choosing engineering fields in college were only 18% in the U.S. in 2010, and this number was as low as 0% in some specific engineering fields (Gibbons, 2011). The fact that male and female students have different interests and learning styles significantly impacts their interests and career choices in STEM disciplines (Margolis & Fisher, 2001). Therefore, research in STEM particularly aims at motivating female students’ to choose STEM fields. Milgram (2011) suggested that the best way to solve the gender gap issue in STEM fields is to design STEM activities that can attract more female students to participate. This study, in which most participants were female, showed that media design activities significantly increased their participant students’ attitude scores in science and media design activities. Hence, media design activities in the context of STEM have the potential to increase the attitudes of female students toward STEM fields.
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Fen, Teknoloji, Mühendislik ve Matematik (FeTeMM) Eğitimine Medya Tasarım Süreçlerinin Entegrasyonu

Atıf
Doi: 10.14689/ejer.2015.60.15

Özet


Araştırmmanın Amacı: Bu araştırmada medya tasarım süreçlerinin FeTeMM eğitimine entegrasyonu ile hazırlanan okul dışı etkinliklerin, ilköğretim 8.sınıf öğrencilerinin fen dersine ve fen spottaki etkinliklerine yönelik tutumları ve ders sorumlusu öğretmen ve öğrencilerin fen öğretim sürecinde medya tasarım süreçlerini kullanarak fen spottu hazırlamaya yönelik düşünmelerinin belirlenmesi amaçlanmıştır.

Araştırmının Yöntemi: Nitel araştırma metodolojisinin desenlerinden biri olan eylem araştırması yöntemiyle 14 hafta sürecinde gerçekleştirilen araştırma çalışma grubunu 2013-2014 eğitim-öğretim yılında sosyo-ekonomik düzeyi düşük bir devlet


FeTeMM destekli eğitim yöntemleri ve öğrenim kazanımlarının FeTeMM araştırmacıları tarafından tanımlanması ve çeşitlendirilmesinin gerekliğine dikkat çekilmektedir. Bu doğrultuda projeye dayalı öğrenmenin bir türü olarak medya tasarım süreçleri, FeTeMM içerisinde güçlü bir alternatif olarak yer almalıdır. Gerçekleştirilen bu araştıranın fen bilimleri derslerinde teknoloji kullanımı konusuna ilgi duyan öğretmen ve fen eğitiminde alternatif uygulama örnekleri sunma ve süreçte karşılaşılabilecekleri olası zorluklara yönelik önerilerde bulunma açısından katki sağlayacağı düşünülmektedir. Ayrıca çevre konuları gibi toplumsal duyarlılığı arttıracak alanlarda hazırlanan fen spotlarının sosyal ağlarda paylaşımlı yoluyla bu ürünlerin etki alanlarının genişletilmesi ve okul-toplum ilişkisinin artırılması sağlanabilir.

Anahtar Kelimeler: Fen, Teknoloji, Mühendislik ve Matematik (FeTeMM) Eğitimi, Medya Tasarımı, Fen Spotu, Eylem Araştırması, Okul Sonrası Etkinlikler
The Extent to Which the Characteristics of a Metacognitive Oriented Learning Environment Predict the Characteristics of a Thinking-Friendly Classroom

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Abstract

Problem Statement: Based on information presented in previous literature, that the characteristics of learning environments foster metacognition and thinking, it is believed that metacognitive oriented classrooms can contribute to the formation of environments needed to teach thinking, and when metacognitive oriented learning environment characteristics of classrooms are developed, their suitability for thinking education will be enhanced. However, in literature, there is no research looking at the predictive relationship between the characteristics of a metacognitive oriented learning environment and the characteristics of a thinking-friendly classroom.

Purpose of the Study: The purpose of the current study is to investigate the predictive relationships between the characteristics of a metacognitive oriented learning environment in science classes and the characteristics of a thinking-friendly classroom based on the opinions of secondary school students.

Method: The study is a predictive study designed in the relational survey model. The sampling of the study consists of 378 students attending secondary schools in the city of Kutahya. In the study, The Metacognitive Orientation Learning Environment Scale–Science (MOLES-S) and Thinking-Friendly Classroom Scale (TFCS) were employed as data collection instruments. In the analysis of the data, Pearson correlation analysis and multi-linear regression were used.

Findings and Results: The results of the regression analysis revealed that all the predictive variables together can meaningfully explain 53% of the total

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variance in TFCS total score: 57% of the variance in teacher behaviors promote thinking; 39% of the variance in student behaviors promote thinking; and 6% of the variance in behaviors prevent thinking.

Conclusion and Recommendations: In light of the findings of the study, it can be argued that the characteristics of a metacognitive oriented learning environment can account for nearly half of the characteristics of thinking-friendly classrooms (in total score) and for the student and teacher behaviors that are part of these characteristics. Thus, theoretical explanations of metacognitive oriented learning environments and thinking-friendly classrooms have been confirmed to a great extent in actual classroom environments. Strong predictive relationships found in the study indicate a need to establish metacognitive oriented learning environments to inculcate students’ thinking skills.

Keywords: Metacognition, thinking, metacognitive oriented learning environment, thinking-friendly classroom environment, secondary school students

Introduction

Metacognition, thinking, and learning are mental operations affecting each other and having strong relationships between each other. Learners’ effective use of their metacognition and thinking skills motivated researchers to investigate how learning takes place and what the characteristics of ideal learning environments are. In this respect, in literature, much research has been produced focusing on how learning takes place and attempting to explain the relationship between effective learning environments and learning outcomes since the 1970s. Since the late 1990s, based on the previously produced information, many researchers have been discussing the characteristics of learning environments that promote metacognition and thinking. These research attempts were accelerated by findings demonstrating that learning environments that promote metacognition and thinking enhance learning outcomes.

The concept of metacognition was first introduced by Flavell in 1976 based on research in developmental psychology and unconsciousness, and to him, metacognition meant the information possessed by an individual about his/her own cognitive system, structure, and functioning (Flavell, 1985). The concept, which has aroused a great deal of research interest, can be defined as an individual’s being aware of his/her own learning and thinking processes and directing and controlling mental operations in a purposeful manner; planning, monitoring, checking, and evaluating the learning process (Baird, 1990; Crick, 2000; Flavell, 1979; Flavell, 1985; Huitt, 1997; Jager, Jensen & Reezigt, 2005; Klausmeier, 1985; Reeve & Brown, 1985). Metacognition that can also be defined as thinking about thinking (Livingston, 1997) has been associated with different constituents by different researchers in literature (Flavell, 1979; Pintrich, 2002; Roberts & Erdos, 1993; Schraw & Dennison, 1994; Schraw & Moshman, 1995). When the relevant literature is reviewed, it is generally
seen that metacognition consists of two components. One of them is metacognitive knowledge, representing an individual’s knowledge about and awareness of his/her own cognitive processes. The other is metacognitive experience, including strategies such as the planning, monitoring, and evaluation of cognitive operations. Through these strategies, it becomes easier for an individual to control his/her learning and achieve his/her cognitive objectives.

After the clarification of the meaning and components of metacognition, the basic issue dealt with in literature today is the teaching of metacognition. One of the two approaches proposed in literature is teaching metacognitive strategies, and the other is creating social environments that promote metacognition (Yurdakul & Demirel, 2011). Initially, some programs, models, or learning strategies were developed for fostering students’ metacognition (Butler, 1998; El-Hindi, 1996; Lin, 2001; Pressley & Woloshyn, 1995; Schoenfeld, 1985; Schraw, 1998). In recent years, on the other hand, the focus has been on the characteristics of learning environments that enable students to recognize their own cognitive structures and to make effective use of metacognitive strategies (Duffy et al., 2009; Lin, Schwartz & Hatano, 2005; Lin, 2001; Thomas, 2003). Drawing on the outcomes yielded by constructivism in relation to the function of learning’s social context, many researchers made suggestions for teachers to improve their students’ metacognitive skills (Blakey & Spence 1999; McInerney & McInerney, 2002; Santrock, 2004).

In this regard, the characteristics of metacognitive oriented learning environments, specifically those proposed by Thomas (2003) for science classes, made tremendous impact. Based on the principles of social constructivism, he argues that metacognition is a product of a social activity (Thomas, 2003). Social constructivism fosters metacognitive development (Kuiper, 2002) and suggests that environments promoting metacognition should be established (Dunlop & Grabinger, 1996). Based on this suggestion, Thomas (2002; 2003; 2013) defines a metacognitive oriented learning environment as an environment where the teacher and students demonstrate metacognitive participation in learning. The research shows that the constituents of a metacognitive oriented learning environment are metacognitive demands, teacher modeling and explanation, student-student discourse, student-teacher discourse, student voice, distributed control, teacher encouragement and support, and emotional support. In such a classroom environment, students’ opinions are respected, students help the teacher to decide which tasks they will be engaged in, students can discuss how well they have learned the lesson with their peers, students may ask why they have to do an activity, and the teacher wants students to think about how they learn during the science course.

Thinking is viewed as the sum of active, purposeful, and organized mental processes conducted to understand a state or a situation (Cuceloglu, 1994). Preliminary studies focusing on the teaching of thinking aimed to develop educational programs to promote thinking, as was the case in metacognition. Towards the end of the 1990s, many researchers focused on the question of what the characteristics of a classroom environment that promotes thinking should be (Alkin, 2012; Berman, 2001; Beyer, 2001; Costa, 1991; French & Rhoder, 2011; Kline, 2002;
Newmann, 1991; Ritchhart, 2002; Ritchhart & Perkins, 2008; Robinson, Shore & Enersen, 2007). Berman (2001) contends that a classroom environment where student thinking is fostered should be a place that makes students feel safe and secure, where students' thoughts are monitored, cooperative thinking is encouraged, great importance is attached to asking questions, how to make connections is taught, multiple viewpoints are imparted to students, students' sensitivities are enhanced, and opportunities are created for students to put their thoughts into action. The first researchers to work on the concept of thinking-friendly classroom, Doganay and Sari (2012a), identified the characteristics of a thinking-friendly classroom within the context of teacher behaviors that promote thinking, student behaviors that promote thinking, and behaviors that prevent thinking. According to the researchers, in a thinking-friendly classroom, the teacher encourages students to compare and evaluate different ideas and to share their opinions with other students, and the teacher also asks students to access to information from different resources on their own; students explain the reasons for their answers when possible with evidence and ask questions to themselves about what they have read.

On the basis of the information presented in literature about characteristics of environments that promote metacognition and thinking, it is thought that metacognitive oriented classrooms will be effective in forming environments necessary for the teaching of thinking, and when the metacognitive oriented characteristics of classrooms are developed, their suitability for thinking instruction will also be enhanced. However, in literature, there is no research statistically testing this thesis and looking at the predictive relationship between the characteristics of a metacognitive oriented learning environment and the characteristics of a thinking-friendly classroom. The basic reason for this gap in literature is that there are no assessment tools allowing the measurement of metacognition primarily in terms of its constituents (e.g. strategies and skills), and the measurement of thinking primarily in terms of its sub-skills (e.g. critical thinking, problem solving, and creative thinking). Therefore, the research in literature mostly focuses on evaluation of individuals' metacognitive awareness, skills, or strategies. In a similar token, thinking is usually evaluated as a product. However, in recent years, development of scales to evaluate the characteristics of learning environments promoting metacognition (Yildiz & Ergin, 2007) and thinking (Doganay & Sari, 2012a) has made the testing of the above-mentioned thesis possible. In literature, it is seen that the number of studies looking at the relationships between the characteristics of learning environments promoting different skills/approaches (Alkın-Sahin, Tunca & Oğuz, 2015; Doganay & Sari, 2012b; Karakelle, 2012; Kirbulut & Gokalp, 2014; Kiremitçi, 2011; Yıldırım & Ersozlu, 2013) is increasing. Thus, the purpose of the current study was to determine the predictive relationships between the characteristics of metacognitive oriented learning environments in science classes and the characteristics of thinking-friendly classrooms based on the opinions of secondary school students. For this purpose, an answer to the question “Do the scores taken from the metacognitive orientation learning environment scale in science classes significantly predict the scores taken from thinking-friendly classroom scale?” was sought. As the reliability and validity studies of the metacognitive oriented learning
Environment scale were conducted for science classes, the current research is limited to determining the characteristics of learning environments that promote metacognition and thinking within the context of science classes. Thus, the predictive relationships to be determined are true only for science classes.

Method

Research Design

The relationships between the secondary school students’ opinions about the suitability of science class environments for promoting metacognition and their opinions about the suitability of science class environments for promoting thinking were attempted to be described by evaluating the existing state. In this respect, the current study is a predictive study in the relational survey model.

Research Sample

The universe of the study consists of 25,157 students attending secondary schools in the city of Kutahya in 2014-2015 school year. In the selection of the sampling, a disproportional cluster sampling technique was employed. This technique helps to overcome the control problems caused by data collection in cases where the scope of the universe is very large (Fraenkel & Wallen, 1990); thus, it was employed in the current study. Each school eligible to be a member of the sample is regarded to be a set and the data were randomly collected from the sets. The size of the sampling for 95% reliability level was calculated to be 378. Of the participants, 41.8% (n=158) are males and 57.2% (n=220) are females. Of the participating students, 19% (n=72) are fifth graders, 15.9% (n=60) are sixth graders, 36.2% (n=137) are seventh graders, and 28.8% (n=109) are eighth graders.

Research Instrument and Procedure

As data gathering tools, The Metacognitive Orientation Learning Environment Scale-Science (MOLES-S) and Thinking-Friendly Classroom Scale (TFCS) were used in the present study.

MOLES-S was developed by Thomas (2003) and adapted to Turkish by Yildiz and Ergin (2007). MOLES-S includes 21 items aiming to elicit how students perceive science classes in terms of their metacognitive orientation and what kinds of experiences they have about metacognition in science classes. MOLES-S is comprised of five dimensions: emotional support, distributed control, student-student discourse, student voice, and metacognitive demands. The items in the scale are scored ranging from “1-Never to 5-Always.” A total score is taken from the whole scale. A high score taken from the scale means that the students’ perception of science classes in terms of their metacognitive orientation is positive. The construct validity of the scale was tested with exploratory and confirmatory factor analyses. Five dimensions of the scale explain 48.68% of the total variance. Confirmatory factor analysis was administered to the 21-item structure of the scale subsumed under five factors. The chi-square ($\chi^2$) value statistical significance levels ($\chi^2/sd=1.77$) suitable
for the model constructed for the scale with confirmatory factor analysis were calculated. Moreover, other goodness of fit indices for the model (GFI=0.93, AGFI=0.91, RMSEA=0.04, CFI=0.95, NFI=0.94, RMR=0.07) show that the recommended model is suitable. The reliability of MOLES-S was tested through the Cronbach's Alpha coefficient, item sum correlations, and comparison of end groups. The Cronbach's alpha coefficient was found to range from 0.57 to 0.87 for the sub-dimensions of the scale and to be 0.87 for the whole scale. In the current study, Cronbach's alpha coefficient was found to range from 0.60 to 0.80 for the sub-dimensions of the scale and to be 0.88 for the whole scale.

Developed by Doganay and Sari (2012a), TFCS consists of 30 Likert-type items aiming to determine the suitability level of classroom environments for promoting students' thinking. TFCS is comprised of three dimensions: teacher behaviors that promote thinking, student behaviors that promote thinking, and behaviors that prevent thinking. The items in the scale are scored ranging from “1 Never to 4 Always.” Six items included in the dimension of “behaviors preventing thinking” are reversely scored. A total score is taken from the whole scale. A high score taken from the scale indicates that the classroom environment has positive characteristics in relation to the related dimension. As the items involved in behaviors that prevent thinking are scored in a reverse order in the analyses, high scores taken from this dimension indicates the scarcity of such behaviors, and they are interpreted positively. Three factors involved in the scale explain 42.36% of the total variance. Cronbach's alpha coefficients of the scale were calculated to range from 0.69 to 0.89 for sub-dimensions and to be 0.73 for the whole scale. In the current study, Cronbach's alpha coefficient was found to be ranging from 0.78 to 0.92 for the sub-dimensions of the scale and to be 0.89 for the whole scale.

Data Analysis

In order to determine the correlations between the suitability of classroom environments for promoting metacognition and for promoting thinking, the Pearson correlation analysis was used. When the absolute value of the correlation coefficient is between 0.70 and 1.00, it indicates a high level of correlation; when it is between 0.69 and 0.30, it indicates a medium level of correlation; and when it is between 0.29 and 0.00, it indicates a low level of correlation (Buyukozturk, 2005). In the present study, scores taken from TFCS constitute dependent variables and scores taken from the sub-dimensions of MOLES-S constitute independent variables. A multi-linear regression analysis was run to determine the extent to which the thinking-friendly characteristics of secondary school science classroom environments is predicted by the scores taken from the sub-scales of MOLES-S (emotional support, distributed control, student-student discourse, student voice, and metacognitive demands). The significance level was set to be .05.
Results

In this section, the correlation values and multi-regression analysis results are presented in Tables 1, 2, 3 and 4.

Table 1.
Multi-Regression Analysis Results Related to the Prediction of the Characteristics of a Thinking Friendly Classroom on the Basis of the Total Score

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>Standard Error</th>
<th>β</th>
<th>T</th>
<th>p</th>
<th>Binary r</th>
<th>Partial r</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>29.818</td>
<td>3.16</td>
<td></td>
<td>9.44</td>
<td>0.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotional support</td>
<td>1.345</td>
<td>0.18</td>
<td>.308</td>
<td>7.31</td>
<td>0.00</td>
<td>0.57</td>
<td>0.35</td>
</tr>
<tr>
<td>Distributed control</td>
<td>.517</td>
<td>0.14</td>
<td>.177</td>
<td>3.59</td>
<td>0.00</td>
<td>0.56</td>
<td>0.18</td>
</tr>
<tr>
<td>Student-student discourse</td>
<td>.595</td>
<td>0.14</td>
<td>.195</td>
<td>4.18</td>
<td>0.00</td>
<td>0.53</td>
<td>0.21</td>
</tr>
<tr>
<td>Student voice</td>
<td>.446</td>
<td>0.17</td>
<td>.117</td>
<td>2.70</td>
<td>0.01</td>
<td>0.49</td>
<td>0.14</td>
</tr>
<tr>
<td>Metacognitive demands</td>
<td>1.198</td>
<td>0.30</td>
<td>.176</td>
<td>3.94</td>
<td>0.00</td>
<td>0.55</td>
<td>0.20</td>
</tr>
</tbody>
</table>

R=0.73  R²=0.53  F(5,372)=84.62,  p=0.00

As seen in Table 1, in science classes, there is a positive, medium level correlation between the characteristics of a thinking-friendly classroom and emotional support (r=0.57), distributed control (r=0.56), student-student discourse (r=0.53), student voice (r=0.49), and metacognitive demands (r=0.55). When the other variables are examined, it is seen that there is a positive, medium level correlation between the characteristics of a thinking-friendly classroom and emotional support (r=0.35); and a positive, low level correlation between the characteristics of a thinking-friendly classroom and distributed control (r=0.18), student-student discourse (r=0.21), student voice (r=0.14), and metacognitive demands (r=0.20). All of the characteristics of a metacognitive oriented learning environment together show a significant correlation with the scores taken from the thinking-friendly classroom scale (R=0.73, p<0.01). The characteristics of a metacognitive oriented learning environment explain 53% of the total variance involved in the characteristics of a thinking-friendly classroom. According to standardized regression coefficient (β), the relative order of importance of the characteristics of a thinking-friendly classroom is as follows: emotional support, student-student discourse, distributed control, metacognitive demands, and student voice. When the results of the t-test conducted to investigate the significance of regression coefficients are examined, it is seen that all the dimensions related to the characteristics of a metacognitive oriented learning
environment are predictors of the characteristics of a thinking-friendly classroom. Based on the findings, the regression equation of the characteristics of a thinking-friendly classroom can be expressed as follows:

\[
\text{Thinking-friendly classroom characteristics total score} = 29.818 + 1.345 \text{ Emotional support} + 0.517 \text{ Distributed control} + 0.595 \text{ Student-student discourses} + 0.446 \text{ Student voice} + 1.198 \text{ Metacognitive demands}
\]

Table 2.
Regression Analysis Results Relating the Prediction of Teacher Behaviors that Promote Thinking

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>Standard Error</th>
<th>(\beta)</th>
<th>T</th>
<th>p</th>
<th>Binary (r)</th>
<th>Partial (r)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>7.560</td>
<td>2.13</td>
<td>3.56</td>
<td>0.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotional support</td>
<td>1.297</td>
<td>0.12</td>
<td>0.423</td>
<td>10.50</td>
<td>0.00</td>
<td>0.65</td>
<td>0.48</td>
</tr>
<tr>
<td>Distributed control</td>
<td>0.276</td>
<td>0.10</td>
<td>0.134</td>
<td>2.84</td>
<td>0.00</td>
<td>0.52</td>
<td>0.15</td>
</tr>
<tr>
<td>Student-student discourse</td>
<td>0.284</td>
<td>0.10</td>
<td>0.133</td>
<td>2.96</td>
<td>0.00</td>
<td>0.48</td>
<td>0.15</td>
</tr>
<tr>
<td>Student voice</td>
<td>0.246</td>
<td>0.11</td>
<td>0.091</td>
<td>2.21</td>
<td>0.03</td>
<td>0.47</td>
<td>0.11</td>
</tr>
<tr>
<td>Metacognitive demands</td>
<td>0.981</td>
<td>0.20</td>
<td>0.205</td>
<td>4.81</td>
<td>0.00</td>
<td>0.57</td>
<td>0.24</td>
</tr>
</tbody>
</table>

\(R=0.76\) \hspace{1cm} \(R^2=0.57\)

\(F\)\text{\((5,372)\)} = 98.86, \hspace{1cm} p= 0.00

As seen in Table 2, there is a positive medium level correlation between teacher behaviors that promote thinking in science classes and emotional support \((r=0.65)\), distributed control \((r=0.52)\), student-student discourse \((r=0.48)\), student voice \((r=0.47)\), and metacognitive demands \((r=0.57)\). When the other variables are examined, it is seen that there is no correlation between teacher behaviors that promote thinking and student voice; there is a positive medium correlation between teacher behaviors that support thinking and emotional support \((r=0.48)\); and there is a positive low level correlation between teacher behaviors that promote thinking and distributed control \((r=0.15)\), student-student discourse \((r=0.15)\), and metacognitive demands \((r=0.24)\). All of the characteristics of a metacognitive oriented learning environment together show a significant correlation with the scores taken from the dimension of teacher behaviors that promote thinking \((R=0.76, p<0.01)\). The characteristics of a metacognitive oriented learning environment explain 57% of the total variance involved in teacher behaviors that promote thinking. According to standardized regression coefficient \((\beta)\), the relative order of importance of the characteristics of a metacognitive oriented learning environment is as follows:
emotional support, metacognitive demands, distributed control, student-student discourse, and student voice. When the results of t-test conducted to investigate the significance of regression coefficients are examined, it is seen that all the dimensions related to the characteristics of metacognitive oriented learning environment in science classes are predictors of teacher behaviors that promote thinking. Based on the findings, the regression equation of teacher behaviors that promote thinking can be expressed as follows:

Teacher behaviors that promote thinking = 7.560 + 1.297 Emotional support + 0.276 Distributed control + 0.284 Student-student discourse + 0.246 Student voice + 0.981 Metacognitive demands

Table 3.
Regression Analysis Results Relating the Prediction of Student Behaviors that Promote Thinking

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>Standard Error</th>
<th>β</th>
<th>T</th>
<th>p</th>
<th>Binary r</th>
<th>Partial r</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>8.226</td>
<td>1.15</td>
<td></td>
<td>7.17</td>
<td>0.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotional support</td>
<td>.331</td>
<td>.07</td>
<td>.239</td>
<td>4.96</td>
<td>0.00</td>
<td>0.45</td>
<td>0.25</td>
</tr>
<tr>
<td>Distributed control</td>
<td>.111</td>
<td>.05</td>
<td>.120</td>
<td>2.12</td>
<td>0.03</td>
<td>0.47</td>
<td>0.11</td>
</tr>
<tr>
<td>Student-student discourse</td>
<td>.215</td>
<td>.05</td>
<td>.222</td>
<td>4.15</td>
<td>0.00</td>
<td>0.47</td>
<td>0.21</td>
</tr>
<tr>
<td>Student voice</td>
<td>.308</td>
<td>.06</td>
<td>.253</td>
<td>5.12</td>
<td>0.00</td>
<td>0.49</td>
<td>0.26</td>
</tr>
<tr>
<td>Metacognitive demands</td>
<td>-.037</td>
<td>.11</td>
<td>-.017</td>
<td>0.34</td>
<td>0.74</td>
<td>0.36</td>
<td>-0.02</td>
</tr>
</tbody>
</table>

R=0.62              R²=0.39
F(5–372) =46.89,  p=0.00

As seen in Table 3, there is a positive medium level correlation between student behaviors that promote thinking in science classes and emotional support (r=0.45), distributed control (r=0.47), student-student discourse (r=0.47), student voice (r=0.49), and metacognitive demands (r=0.36). When the other variables are examined, it is seen that there is no correlation between student behaviors that promote thinking and distributed control and metacognitive demands; and there is a positive low level correlation between student behaviors that promote thinking and emotional support (r=0.25), student-student discourse (r=0.21), and student voice (r=0.26). All of the characteristics of a metacognitive oriented learning environment show a significant and medium level correlation with the scores taken from the dimension of student behaviors that promote thinking (R=0.62, p<0.01). The characteristics of a metacognitive oriented learning environment explain 39% of the
total variance involved in student behaviors that promote thinking. According to the standardized regression coefficient (β), the relative order of importance of the characteristics of a metacognitive oriented learning environment is as follows: student voice, emotional support, student-student discourse, distributed control, and metacognitive demands. When the results of the t-test conducted to investigate the significance of regression coefficients are examined, it is seen that emotional support, distributed control, student-student discourse, and student voice are predictors of student behaviors that promote thinking. Metacognitive demands do not have a significant influence on student behaviors that promote thinking. Based on the findings, the regression equation of student behaviors that promote thinking can be expressed as follows:

\[
\text{Student behaviors that promote thinking} = 8.226 + 0.331 \text{ Emotional support} + 0.111 \text{ Distributed control} + 0.215 \text{ Student-student discourse} + 0.308 \text{ Student voice} - 0.037 \text{ Metacognitive demands}
\]

Table 4.

Regression Analysis Results Relating the Prediction of Behaviors that Prevent Thinking

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>Standard Error</th>
<th>β</th>
<th>T</th>
<th>p</th>
<th>Binary r</th>
<th>Partial r</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>14.068</td>
<td>1.51</td>
<td>9.30</td>
<td>0.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotional support</td>
<td>-0.273</td>
<td>0.09</td>
<td>-0.186</td>
<td>3.11</td>
<td>0.00</td>
<td>-0.09</td>
<td>-0.16</td>
</tr>
<tr>
<td>Distributed control</td>
<td>0.132</td>
<td>0.07</td>
<td>0.133</td>
<td>1.90</td>
<td>0.06</td>
<td>0.13</td>
<td>0.10</td>
</tr>
<tr>
<td>Student-student discourse</td>
<td>0.1</td>
<td>0.07</td>
<td>0.097</td>
<td>1.46</td>
<td>0.14</td>
<td>0.13</td>
<td>0.08</td>
</tr>
<tr>
<td>Student voice</td>
<td>-0.106</td>
<td>0.08</td>
<td>-0.082</td>
<td>1.34</td>
<td>0.18</td>
<td>-0.01</td>
<td>-0.07</td>
</tr>
<tr>
<td>Metacognitive demands</td>
<td>0.236</td>
<td>0.15</td>
<td>0.103</td>
<td>1.63</td>
<td>0.11</td>
<td>0.09</td>
<td>0.08</td>
</tr>
</tbody>
</table>

R=0.24 \quad R^2=0.06

F(5,372)=4.45, \quad p=0.00

As seen in Table 4, there is no correlation between behaviors that prevent thinking in science classes and the sub-dimensions related of the characteristics of a metacognitive oriented learning environment. When the other variables are examined, it is seen that there is only a negative low level correlation between behaviors that promote thinking and emotional support (r=-0.16). No correlation was found between behaviors that prevent thinking and other sub-dimensions. All of the characteristics of a metacognitive oriented learning environment show a significant and low level correlation with the scores of the dimension of behaviors that prevent thinking (R=0.24, p<0.01). The characteristics of a metacognitive oriented learning
environment explain 6\% of the total variance involved in behaviors that prevent thinking. According to standardized regression coefficient (β), the relative order of importance of the characteristics of a metacognitive oriented learning environment on behaviors that prevent thinking is as follows: emotional support, distributed control, metacognitive demands, student-student discourse, and student voice. When the results of the t-test conducted to investigate the significance of regression coefficients are examined, it is seen that only emotional support is a predictor of behaviors that promote thinking. Distributed control, student-student discourse, student voice, and metacognitive demands do not have a significant influence on behaviors that prevent thinking. Based on the findings, the regression equation of behaviors that prevent thinking can be expressed as follows:

\[
\text{Behaviors that prevent thinking} = 14.068 - 0.273 \text{Emotional support} + 0.132 \text{Distributed control} + 0.1 \text{Student-student discourse} - 0.106 \text{Student voice} + 0.236 \text{Metacognitive demands}
\]

Discussion and Conclusion

The current study’s purpose is to determine the extent to which the characteristics of a metacognitive oriented learning environment in science classes predict the characteristics of a thinking-friendly classroom on the basis of the secondary students’ opinions. The results of the regression analysis revealed that all the predictive variables together can meaningfully explain 53\% of the total variance in TFCS total score; 57\% of the variance in teacher behaviors promoting thinking; 39\% of the variance in student behaviors promoting thinking; and 6\% of the variance in behaviors preventing thinking. In light of the findings of the study, it can be argued that the characteristics of a metacognitive oriented learning environment can account for nearly half of the characteristics of a thinking-friendly classroom (in total score), and for student and teacher behaviors, which are a part of these characteristics. As the dimension of behaviors that prevent thinking includes negative items, it is expected that the characteristics of a metacognitive orientation learning environment do not explain this dimension. All these results show that theoretical explanations made about metacognitive oriented learning environments and thinking-friendly classrooms have been confirmed to a great extent in actual classroom environments.

Another important finding of the study is that each of the predictive variables significantly predicts TFCS total scores, teacher behaviors that promote thinking, and (except for metacognitive demands) student behaviors that promote thinking. According to Thomas (2003), one of the predictive variables, emotional support, indicates a classroom environment where students’ efforts, opinions, and individual differences are appreciated and respected, and students are therefore emotionally motivated to learn. Metacognitive demands indicate a classroom environment where teachers want their students to try new methods while learning science subjects, and to think about how they learn science subjects and how they can enhance their learning. Distributed control indicates a classroom environment where autonomous learners help their teachers to make decisions about the planning of the course.
Student-student discourse indicates a classroom environment where students discuss the learning process in science classes with each other. Student voice indicates a classroom environment where students know that they can question their teachers’ pedagogic plans and methods (Thomas, 2003). In the literature explaining the characteristics of a thinking–friendly classroom, it is emphasized that in such classes, teachers should monitor the process followed by their students while performing a cognitive task; students’ individual differences, efforts, criticisms, and emotions should be appreciated (Costa, 1991; Kline, 2002; Robinson, Shore & Enersen, 2007); students should be encouraged to work in co-operation (Berman, 2001; Newmann, 1991; Ritchhart, 2002); and students’ opinions should be monitored (Berman, 1991).

In this connection, the findings of the current study meet the expectations.

Regression analysis results display a good agreement with the medium level, positive, and significant correlation coefficients found between TFCS total scores, teacher behaviors that promote thinking, student behaviors that promote thinking, and scores taken from MOLES-S. In this regard, it can be argued that with an increasing level of metacognitive orientation, thinking-friendliness also improves. Though indirectly, in literature, the findings reported by studies revealing significant correlations between learner autonomy and behaviors that promote critical thinking (Alkin-Sahin, Tunca & Oguz, 2015); the characteristics of a constructivist learning environment and the characteristics of a thinking-friendly classroom (Doganay & Sari, 2012b); metacognitive awareness, problem solving perception, and need for thinking (Karakelle, 2012); metacognitive science learning orientations and constructivist learning environment (Kirbulut & Gokalp, 2014); metacognitive awareness and problem solving skills (Kiremitci, 2011); and metacognitive awareness and the solutions to similar types of mathematical problems (Yildirim & Ersozlu, 2013) can be argued to support the findings of the current study.

Distributed control, student-student discourse, student voice, and metacognitive demands do not significantly predict behaviors that prevent thinking. As the positive attributes indicated by the relevant predictive variables do not match the literature constructed on behaviors that prevent thinking (Alkin, 2012; Innabi, 2003) and because the dimension of behaviors that prevent thinking consist of negative items, this is an expected result. Emotional support significantly predicts behaviors that prevent learning, but this relationship should be evaluated together with the low, negative, and significant correlation detected between these two dimensions. In this regard, it can be claimed that with increasing emotional support in classroom environments, behaviors that prevent thinking are reduced. Thus, the relevant finding concurs with literature.

Another important finding of the current study is that emotional support is the strongest predictor of almost all of the dependent variables. The items involved in the emotional support dimension are “students’ efforts are appreciated,” “students’ individual differences are respected,” “students and science teacher trust each other,” and “students’ opinions are respected.” In literature, it is also emphasized that for an effective utilization of metacognition, as well as cognitive knowledge of an individual, knowledge of affective states should be monitored and organized, and
an interaction between metacognitive knowledge and affective motivation needs to be formed (Hacker, 1998; Palincsar & Brown, 1987). Both the scale items and the explanations proposed in literature match with the characteristics of a thinking-friendly classroom (Berman, 1991; Costa, 1991; French & Rhoder, 2011; Kline, 2002; Newmann, 1991). Thus, the characteristics pointed out by the dimension of emotional support are essential conditions for the learning environment that promotes thinking, and this is an expected result. Alkin-Sahin, Tunca and Oguz (2015) support this finding by reporting positive medium level correlations ranging from 0.35 to 0.43 between teacher behaviors that promote student autonomy and teacher behaviors that support critical thinking.

Another important finding of the present study is that metacognitive demands are not a significant predictor or even a weak predictor of the dependent variables in terms of relative order of importance. However, metacognitive demands are expected to be a strong predictor of a learning-friendly classroom environment. An important reason for this finding, which is contrary to the expectation, may be related to the reliability of metacognitive demands. In the original form of MOLES-S developed by Thomas (2003), while there are five items in the dimension of metacognitive demands, in its version adapted by Yildiz and Ergin (2007), the number of items is reduced to two. The researchers viewed this as an important limitation of the study, and they developed new items for this dimension and noted that the reliability of the dimension should be improved.

The strong predictive relationships detected in the present study indicate that metacognitive oriented learning environments need to be developed to impart thinking skills to students. This may contribute to the education of individuals whose metacognitive awareness is high, who can use their metacognitive strategies and who can think reasonably, consistently, and effectively. Emotional support, one of the dimensions of a metacognition oriented classroom environment, is a strong and significant predictor of the characteristics of a thinking-friendly classroom. In this regard, in-service training programs would help teachers create metacognition oriented environments, which should raise the awareness of particularly the characteristics involved in the dimension of emotional support. In the current study, the investigation of the characteristics of a metacognition oriented learning environment and thinking-friendly learning classroom is limited to the measurements made in science classes. Future research may look at school subjects having different classroom environments. For such research to be widespread, scales to evaluate the characteristics of metacognitive oriented learning environments and thinking-friendly classrooms within the context of different courses should be developed. Such scales will contribute to the improvement of the reliability and validity of the existing scales and the collection of more reliable data in correlation studies. Moreover, the current study investigated the characteristics of metacognitive oriented learning environments and thinking-friendly classrooms based on student opinions. Future research may focus on teacher opinions or classroom observations.
References


Özet


Araştırmanın Amacı: Araştırmanın amacı, ortaokul öğrencilerinin görüşlerine göre, fen derslerinde üst bilişe yönelimli sınıf ortamı ile düşünme dostu sınıf ortamı arasındaki ilişkileri incelenmesidir.

Araştırmanın Yöntemi: Araştırma yöntemleri, ortaokul öğrencilerinin görüşlerine göre, fen derslerinde üst bilişi yönelimli sınıf ortamı ile düşünme dostu sınıf ortamı arasındaki yordamsal ilişkilerin belirlenmesidir.

oranda yordandığını belirleme amacı ile ise çoklu doğrusal regresyon analizi yapmıştır.

**Araştırmanın Bulguları:** Araştırmada yapılan regresyon analizi sonuçlarına göre, yordayıcı değişkenler, birlikte, DDSÖ toplam puanındaki varyansın % 53’sini; düşünmeyi geliştirenci öğretmen davranışlarından varyansın % 57’sini; düşünmeyi geliştirenci öğrenci davranışlarından varyansın % 39’unu ve düşünmeyi engelleyici davranışlardaki varyansın % 6’sını anlamlı bir şekilde açıklamaktadır. Regresyon katsaylarının anlamılığına ilişkin t testi sonuçları incelendiğinde, fen derslerinde üst bilişe yönelimli sınıf ortamı özelliklerine ilişkin bütün boyutların (duyusal destek, paylaşılması kontrol, öğrenci-öğrenci etkileşimi, öğrencinin sesi, üst bilişsel talepler), DDSÖ toplam puanlarını, düşünmeyi destekleyici öğretmen davranışlarını ve (üst bilişsel talepler değişkeni dışında) düşünmeyi destekleyici öğrenci davranışlarını anlamlandı bir şekilde yordadığı belirlenmiştir. Paylaşılan kontrol, öğrenci-öğrenci etkileşimi, öğrencinin sesi ve üst bilişsel talepler, düşünmeyi engelleyici davranışlar üzerinde anlamı düzeyde etkili değildir. İlgili yordayıcı değişkenlerin işaret ettiği olumlu özellikler; düşünmeyi engelleyici davranışların, olumsuz ifadelerden oluşan düşünmeyi engelleyen alanyazın ve ölçekteki olumsuz ifadelerden oluşan düşünmeyi engelleyen davranışlarla ortuşmamı için bu sonuç beklenirdi.

amaçlayan ölçme araçlarının kazandırılması gerekmektedir. İlgili konularda geliştirilecek ölçme araçları, sınırlı sayıdaki mevcut araçların geçerlik-güvenirlikle ilgili sorunlarının çözülmesine katkı sağlayacağı gibi, ilişkisel araştırmalarda daha güvenilir bilgilerin elde edilmesine de olanak sağlayacaktır. Ayrıca araştırmada, sınıf ortamlarının üst bilişe yönelimli olması ve düşünmeyi desteklemesi, öğrenci görüşlerine göre incelenmiştir. Gelecek araştırmalarda, ilgili sınıf ortamları, öğretmen görüşleri ya da sınıf içi gözlemler yoluya da incelebilir.

Anahtar sözcükler: Üstbiliş, düşünme, üstbilişe yönelimli sınıf ortamı, düşünme dostu sınıf ortamı, ortaokul öğrencileri
The Effect of Multimedia-Based Learning on the Concept Learning Levels and Attitudes of Students

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Abstract

Problem Statement: Rich stimuli received by sensory organs such as vision, hearing, and touch are important elements that affect an individual’s perception, identification, classification, and conceptualization of the external world. In primary education, since students perform conceptual abstraction based upon concrete characteristics, when they lack sufficient knowledge of and experience with these characteristics, they encounter serious difficulty with performing conceptual abstraction and using concepts according to their functions.

Purpose of the Study: This study examined the impact of teaching based on rich stimuli upon students’ effective use of conceptualization processes and whether multimedia-based learning can change the attitudes of students toward learning.

Methods: A 28-item concept test (r.70 3) and 28-item attitude scale (r.87) were developed for a unit titled “Let’s Get Acquainted with Our Region” of a social studies course. The levels of students’ learning concepts covered in the unit and their use in accordance with their functions were examined via a pretest–posttest model. Students in the experimental group were taught 24 concepts covered in the unit through multimedia-based teaching activities for 6 weeks. In the control group, the same concepts were taught with teaching activities already established for the

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Students in the experimental group subjected to multimedia-based teaching were compared with the control group students in terms of how they perceived, distinguished, classified, generalized, and functionally used concepts. An attitude scale was also administered both before and after teaching to determine whether any change occurred in the attitudes of students toward their respective courses. Data analysis involved calculating means and standard deviations, as well as $t$ tests and one-way analysis of variance.

**Finding and Results:** In terms of identifying and classifying concepts and making inferences through generalization, students in the experimental group showed a significantly positive change in attitude toward the social studies course.

**Conclusions and Recommendations:** This study highlighted the importance of a balanced use of information channels and the critical role of contextual arrangements in multimedia-based teaching concerning how students use concepts according to their functions at the end of concept-teaching processes. Based on the findings, some recommendations can be made regarding the concept-teaching process, the teaching materials used in the teaching process, and the elimination of deficiencies about concept teaching.

**Keywords:** Classification, conceptualization, functional use, generalization, identification, rich stimuli

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**Introduction**

Each person enters this world as an individual biological being, one who receives stimuli from the external world that he or she transfers via sensory organs to the mind. Each sensory organ performs independent processes on the stimuli it receives, meaning that information from sensory organs is initially disordered, unconnected, and meaningless. As a result, association and interpretation occur in the mind. In this context, *learning* refers to conscious responses to information received from sensory organs. According to sensory integration theory, an individual’s participation in the learning process, both physically and in line with sensations, involves many nerve endings stimulated simultaneously and in coordination (Bundy, Lane, & Murray, 2002; Willis, 2008). As such, *interpretation* refers to the transferal of chemical changes in stimulated nerve endings to neurons engaged in cognition, the comparison and association of the information with previous experiences, and its rearrangement in cognition. Referred to as *perception*, this process by which knowledge is constructed in the mind coincides with sensation, meaning that it is exceptionally difficult for objects to be sensed in their entirety (Manocha & Narang, 2004).

An individual envisages the stimuli that he or she receives in his or her cognitive world and concretizes them via symbolization by means of language. Stimuli associated with objective reality received by sensory organs thus also contribute to
the process of abstraction, which involves four types. Conceptual abstraction is **concrete** if it entails directing one’s attention to an object, distinguishing it from other objects, and envisaging it; conceptual abstraction is **identity related** if it encompasses hearing and vision, observing different environments, distinguishing, and recognizing; conceptual abstraction is **classificatory** if it means making generalizations among multiple similar objects or events and responding accordingly; and conceptual abstraction is **formal** if it requires identifying, defining, explaining relevant characteristics, distinguishing, and evaluating relevant former characteristics alongside current ones (Klausmeier, 1975). The knowledge acquired in any of these processes is stored in the long-term memory, and when an individual faces new experiences, he or she recalls the concepts (i.e., abstractions) acquired beforehand and uses them in formulating new concepts. Conceptualization includes such processes as sensation, perception, identification, classification, association, generalization, and functional use. In this regard, the skills of perceiving, distinguishing, generalizing, and classifying need to be improved among students in the concept-learning process (Klausmeier, 1976; Merrill & Tennyson, 1992; Tennyson, 1980).

Abstractions that emerge through mental operations are considered to constitute the primary characteristic of mental functioning. Every concept formed in the human mind refers to something and is part of the hierarchy of concepts, meaning that concepts are stored hierarchically in the mind (Senemoğlu, 2015, pp. 43–44). However, an individual may fail to interpret concepts sufficiently even if he or she experiences the aforesaid processes in enough depth, largely because the concrete characteristics of objects and ideas that the individual acquires via experience play an important role in his or her interpretation of abstract ones (Barsalou, 1999; Barsalou & Wiemer–Hastings, 2005). For children, abstraction based on the concrete characteristics of objects and ideas is in fact a process of transformation that requires children to rearrange knowledge in their minds. At the stage of transitioning from concrete to abstract characteristics, children thus do not understand the abstract presentation of new knowledge until they internalize it (Piaget, 1974).

Conceptual knowledge is internalized via a bidirectional interaction involving the assimilation and accommodation of realities with the mind. While some individuals assimilate new knowledge rapidly in the interaction process, others exert more effort to integrate, accommodate, and rearrange new knowledge in their minds (Driscoll, 1984; Hartshorn & Boren, 1990; Heddens, 1986; Sowell, 1974; Sprinthall & Sprinthall, 1977). This difference occurs because conceptual knowledge based on abstractions is presented differently and with greater qualification than concrete conceptual knowledge (Sebastian & Elizabeth, 2005). Necessary in this process is multimedia by which individuals can use their sensory organs in balanced ways. With multimedia, conceptual knowledge must be transferred to cognition, coded, and analyzed without causing an overload of sensory channels. If stimuli of rich content is provided, difficulties with identifying, associating, and reconstructing the qualifications of concepts in cognition disappear. By contrast, in environments lacking sufficiently multiple stimuli, many students experience difficulty with
understanding the contents of concepts and fail to close the gap between the world of thought and the physical world (Bayram, 2004). Researchers have reported that teachers play an important role in filling such gaps in the learning process (Berman & Friederwitzer, 1983; Heddens, 1986; Sowell, 1989). In this sense, teachers can facilitate students’ transition from concrete to abstract thinking by presenting concrete materials via multimedia, enabling students to think logically, and improving their thought processes by exposing them to different examples (Heddens, 1986; Stanic & McMillan, 1989).

Previous studies have demonstrated that the presentation of verbal information through vocalization but not visualization makes multimedia-based teaching more effective (Gelder & Vroomen, 1997; Tabbers, Martens, & van Merriënboer, 2001). This dynamic can be attributed to the fact that verbal information and visual information are processed in two subsystems during cognition: that of the verbal and that of the image. While visuals are analyzed in both verbal and image systems, words and sentences are analyzed in the verbal system only, which augments the effect of images in the text on memory and facilitates a dual coding process.

Sensations perceived by multiple sensory organs add depth to perception and interpretation in cognition. While some individuals can internalize abstract and symbolic concepts thanks to concrete experiences, others who fail to do so regard abstract concepts to be only superficial words and phrases to be memorized instead of evaluating them as part of the perception process. When students are asked to explain a concept within a conceptual category, they demonstrate their understandings based on their personal perceptions and in their own words. However, when students are asked to remember only the process without explaining any conceptual categorization, they confuse concepts and generally forget them.

Students can effectively interact with information based on images, sounds, and words designed in a previously determined sequence at any time and in any order they desire in accordance with their own decisions, as well as analyze stimuli received during interaction and internalize them (Sarı, 1993: 35). By activating multiple sensations in the teaching environment, multimedia contributes to perception, performance, memory, visual memory, visual attention, and motor skills (Stephenson, 2002).

Yet, researchers have also reported that multimedia can negatively affect learning as a result of scientific overload (Gelder & Vroomen, 1997). As a solution, at least one report has recommended distributing information among sensory channels in balanced ways (Cakmak, 2007). In this study, verbal and visual materials were used together though verbal expression adopted instead of written expression. Visual materials concerning the teaching of attributes of concepts were associated with verbal information, and visuals (e.g., films) were presented through vocalization.

In this sense, the purposes of the present study was to determine how teaching using multimedia-based stimuli affected the competencies of students in identifying, classifying, generalizing, and functionally using concrete and abstract characteristics of concepts, as well as to ascertain whether this process changed the attitudes of
students toward learning. As such, experiments with multimedia-based teaching environments were necessary. This study was based on the thought that if the gap experienced by students in transitioning from comprehending concrete characteristics to grasping their abstract ones was filled by multimedia, the difficulties experienced by students in transitioning from concrete to abstract thinking could be diminished. In this regard, the study sought to identify the effect of multimedia-based teaching environments on students’ learning of concepts covered in the unit “Let’s Get Acquainted with Our Region” taught in a fifth-grade social studies course in Turkey. As connected this problem to \textit{research sub-problems identify as follows:}

1. \textit{Is multimedia-based education affects students’ competencies of naming, associating, classifying, and generalizing concepts?}

2. \textit{Is multimedia-based education affects students’ competency of using concepts functionally?}

3. \textit{Is multimedia-based education affects students’ attitudes toward lessons?}

To such an end, three hypotheses were developed, as follows:

1. Fifth-grade students educated in a multimedia-based teaching environment differ from those taught in an otherwise similar teaching environment in terms of their capability to identify, associate, and classify concepts covered in the unit “Let’s Be Acquainted with Our Region” and to make inferences about these concepts through generalizations.

2. Fifth-grade students educated in a multimedia-based teaching environment differ from those taught in an otherwise similar teaching environment in terms of their capability to functionally use concepts covered in the unit “Let’s Get Acquainted with Our Region.”

3. Multimedia induces a change in the attitudes of students toward the social studies course.

\textbf{Method}

An experimental model based on a pretest-posttest design involving an experimental and control group was implemented to investigate the effect of multimedia on concept learning. The concept-learning levels of the fifth-grade students’ learning concepts with multimedia were compared with the concept acquisition levels of fifth-grade students continuing to learn concepts in the existing, otherwise similar teaching environment.

\textit{Design}

In this study, multimedia used in teaching 24 concepts covered in the unit “Let’s Get Acquainted with Our Region” to fifth graders was the primary variable. To test the hypotheses related to concept-learning levels, the study was conducted on both
an experimental and control group formed via the random sampling of students in middle schools located in the city center of Kırşehir, Turkey.

Sample

Both the experimental and control groups of students with concept acquisition levels close to one another were formed to test students acquisition of concepts related to the unit “Let’s Get Acquainted with Our Region.” Messages in the teaching materials developed for the unit were presented to the experimental group so that multiple sensory channels would be used, while the control group was taught according to the existing, otherwise similar teaching approach. Both groups of students were equalized in terms of gender, age, and preliminary knowledge about the concepts covered in the unit. As prescribed in the instructional plan provided by the Turkish Ministry of National Education (MEB), the unit “Let’s Get Acquainted with Our Region” was taught to both groups over the course of 5 weeks.

Instruments and Procedure

Developing the concept test. A test involving the functional use of concepts covered in the unit was developed for data collection. Before the test was developed, goals and acquisitions about the teaching unit were reviewed, and a table of specifications was created based on the classification and association of concepts covered in the unit, the description of different semantic structures (e.g., finding appropriate real-world counterparts in terms of content), the association of concepts, and the cause-and-effect relationships and inferences about each concept. A 65-question test was prepared to determine the fifth-grade students’ levels of learning the concepts covered in the unit “Let’s Get Acquainted with Our Region.” For each acquisition in the table of specifications, questions of different levels and meanings were prepared.

To ensure the test’s validity and reliability, its items were prepared by drawing upon content in the middle schools’ curriculum, the social studies textbook, encyclopedias, and journals. Sixty-five multiple-choice questions were prepared according to the above content in accordance with the acquisitions indicated in the table of specifications. All 65 questions were evaluated for their appropriateness to the students and the scope of the unit by three field teachers and three faculty members specialized in assessment and evaluation, curriculum development, and social studies teaching. Twelve questions were removed from the test after this process.

As a pilot study, the 53-question achievement test prepared was administered to a total of 186 students attending seven different schools that did not include students from the experimental and control groups, after which the test was transformed into forms A and B. During item analysis, dysfunctional items were either removed from the measurement tool or corrected and re-administered to be analyzed with 167 students not previously subjected to the tool. Test statistics such as the means, standard deviation, distinctiveness of each item, and reliability estimation were calculated. Based on statistical analyses, the alpha reliability coefficient of 28
questions with a disc index of at least .28 and proportion correct greater than .45 was found to be .703. Ultimately, a test of 28 questions was developed.

Developing the Social Studies Course Attitude Scale. The Social Studies Course Attitude Scale (SSCAS) was prepared as a 40-item five-point Likert-type scale consisting of 40 items to determine the attitudes of students toward learning concepts in the social studies course. First, the researchers constructed 40 sentences concerning concepts covered in the course. Second, for these 40 sentences, expert opinion was gathered from three faculty members specialized in assessment and evaluation, curriculum development, and social studies teaching. Third, based on their criticisms and recommendations, the 40-item scale was administered to a group of 310 teachers at middle schools within the scope of the validity and reliability study of the scale. Explanatory factor analysis revealed that scale items could be classified into three subscales: one of items concerning a negative attitude toward the social studies course, another of items concerning a positive attitude toward the course, and the last of items concerning how the course could be conducted more effectively. Results revealed a positive item-scale relationship for all attitude items, which were thus used in the study proper without modification. To determine the scale’s reliability, Cronbach’s $r$ value was determined, which as .86 indicated high reliability. The reliability coefficient in the final version of the SSCAS was .845, and all scale items were found to be functional and ready for implementation.

Procedure

Before the course material was taught, the 28-question concept analysis test and 28-item SSCAS were administered to students in the control and experimental groups. To ensure the effective application of the teaching program prepared for the experimental group and the fulfillment of teaching goals, researchers informed the course teacher about concept teaching, the use of technological tools, the order and duration of teaching materials, and the teaching process flow chart.

For both groups, the unit was then taught for 6 weeks (i.e., 18 course hours) in accordance with the curriculum provided by the Turkish MEB. During that period, the unit “Let’s Get Acquainted with Our Region” was covered in the control group within the scope of goals and acquisitions given to the teacher.

By contrast, the unit was covered in the experimental group accompanied with multimedia aimed to supplement the teaching program. For both groups, the teaching program was distributed along with the teaching materials prepared by researchers, including concept maps, graphs, puzzles, meaning maps, an activity involving the preparation of relief maps with play dough, and another entailing the concretization of erosion with a cloth, sand, and water, among other activities. The visual materials developed in the teaching process were placed on the classroom board, and small versions of materials were affixed to the students’ notebooks. Once the unit was completely taught, the achievement test and SSCAS were re-administered to both groups.
**Data Analysis**

Within the scope of the analysis of data related to the first, second, and third hypotheses, a concept evaluation test was administered to the control and experimental groups as both a pre- and posttest in order to determine to what degree students understood the concepts in the unit “Let’s Be Acquainted with Our Region” covered in the social studies course, as well as to what degree they used those concepts in their actual lives in accordance with their relevant functions. The concept acquisition pretest scores of both groups were recorded and the means and standard deviations of the pre- and posttest scores of the groups calculated. One-way analysis of variance (ANOVA) was conducted in order to reveal any significant difference between posttest scores concerning concept acquisition levels. The level of significance was set at \( p < .05 \).

Within the scope of the analysis of data related to the third hypothesis, the attitudes of students toward concept learning in the social studies course were targeted by administering the SSCAS to both the control and experimental groups twice: before and after the unit was taught. The means and standard deviations of the pre- and posttest attitude scores of the groups were investigated. Once the unit was completely taught, the attitude levels of the groups were measured, and one-way ANOVA was conducted to reveal any significant difference between scores pre- and posttest. The level of significance was again set at \( p < .05 \).

**Results**

This section examines each the present study’s hypotheses one by one. Data are tabulated and provided under the relevant hypothesis.

1. Multimedia-based education affects students’ competencies of naming, associating, classifying, and generalizing concepts.

The concept-learning competencies of the experimental group educated in an environment based on multimedia and the control group taught in the existing, otherwise similar teaching environment were calculated based on their scores achieved on the pre- and posttest. Table 1 provides the means, standard deviations, and \( t \) values of both groups in accordance with the scores achieved.
Table 1

Pre and Post-test Means and Standard Deviations of the Groups

<table>
<thead>
<tr>
<th>Group</th>
<th>Pre-test</th>
<th>Post-test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>M</td>
</tr>
<tr>
<td>Experimental</td>
<td>27</td>
<td>8.88</td>
</tr>
<tr>
<td>Control</td>
<td>27</td>
<td>8.77</td>
</tr>
</tbody>
</table>

To understand whether the difference between the means of the experimental and control groups was statistically significant, one-way ANOVA was performed with the groups’ scores, the results of which appear in Table 2.

Table 2.

The Groups’ Levels of Identifying, Classifying, Generalizing, and Functionally Using Concepts

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Source of variance</th>
<th>Sum of square</th>
<th>Df</th>
<th>Mean square</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identification</td>
<td>Among groups</td>
<td>28.16</td>
<td>1</td>
<td>28.167</td>
<td>16.49</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Within groups</td>
<td>88.81</td>
<td>52</td>
<td>1.708</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>116.98</td>
<td>53</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Classification</td>
<td>Among groups</td>
<td>14.51</td>
<td>1</td>
<td>14.519</td>
<td>5.95</td>
<td>.018</td>
</tr>
<tr>
<td></td>
<td>Within groups</td>
<td>126.81</td>
<td>52</td>
<td>2.439</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>141.33</td>
<td>53</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generalization</td>
<td>Among groups</td>
<td>26.74</td>
<td>1</td>
<td>26.741</td>
<td>10.03</td>
<td>.003</td>
</tr>
<tr>
<td></td>
<td>Within groups</td>
<td>138.59</td>
<td>52</td>
<td>2.665</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>165.33</td>
<td>53</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Functional use</td>
<td>Among groups</td>
<td>2.66</td>
<td>1</td>
<td>2.667</td>
<td>3.58</td>
<td>.064</td>
</tr>
<tr>
<td></td>
<td>Within groups</td>
<td>38.66</td>
<td>52</td>
<td>.744</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>41.33</td>
<td>53</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total score</td>
<td>Among groups</td>
<td>240.66</td>
<td>1</td>
<td>240.667</td>
<td>19.04</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Within groups</td>
<td>657.03</td>
<td>52</td>
<td>12.635</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>897.70</td>
<td>53</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
As Table 2 shows, a significant difference emerged between groups in terms of their capability to identify (F (1–52) = 16.49, p < .05), classify (F (1–52) = 5.95, p < .05), and generalize (F (1–52) = 10.3, p < .05) concepts, yet not in terms of functionally using them. A significant difference also emerged between the total scores of the groups achieved in all dimensions (F (1–52) = 19.04, p < .05).

A statistically significant difference in favor of the experimental group was additionally detected between the means of two groups according to identifying, classifying, and generalizing. A t test was conducted to identify the source of difference between the concept-learning levels of students and determine whether the difference between the means of the groups was statistically significant.


Table 3.

Means, Standard Deviations, and T Values of The Posttest by Levels of Identifying, Associating, Generalizing, and Functionally Using Concepts

<table>
<thead>
<tr>
<th>Concept</th>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>T</th>
<th>SD</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identification</td>
<td>Experimental</td>
<td>27</td>
<td>5.74</td>
<td>1.095</td>
<td>4.06</td>
<td>52</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>27</td>
<td>4.29</td>
<td>1.488</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Classification</td>
<td>Experimental</td>
<td>27</td>
<td>5.29</td>
<td>1.353</td>
<td>2.44</td>
<td>52</td>
<td>.018</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>27</td>
<td>4.25</td>
<td>1.745</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generalization</td>
<td>Experimental</td>
<td>27</td>
<td>6.59</td>
<td>1.393</td>
<td>3.16</td>
<td>52</td>
<td>.003</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>27</td>
<td>5.18</td>
<td>1.840</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Functional use</td>
<td>Experimental</td>
<td>27</td>
<td>2.66</td>
<td>.832</td>
<td>1.89</td>
<td>52</td>
<td>.064</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>27</td>
<td>2.22</td>
<td>.891</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Posttest total</td>
<td>Experimental</td>
<td>27</td>
<td>20.185</td>
<td>3.076</td>
<td>4.36</td>
<td>52</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>27</td>
<td>15.963</td>
<td>3.9757</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3 reveals a significant difference in favor of the experimental group in identifying, associating, classifying, and generalizing concepts (df = 52, p < .05), possibly due to multimedia-based teaching. However, no significant difference emerged between the groups in functionally (df = 52, p < .05).

In another study conducted with fifth-grade students, Bulut (2006) detected a significant difference in favor of the concept development method in comparison with a traditional teaching method in terms of students’ learning the meanings of
words and using them appropriately. The present study’s results similarly demonstrate that multimedia positively affects students’ use of concepts. Multimedia enabled the experimental group to comprehend the attributes of concepts and the relationship between them given in the verbal and visual materials provided. Previous research has suggested that the combination of conceptual characteristics with stimuli helps to form perceptive bonds in categorization (Goldstone, 2000). When an individual determines categorical differences, he or she can distinguish relevant perceptive dimensions and take each as a separate part (Goldstone & Steyvers, 2001). In fact, the interpretation of even one example of a category based on preliminary knowledge in inter-conceptual association contributes to the formation of a coherent category (Ahn, Brewer, & Mooney, 1992). Furthermore, when an individual realizes functional rules, he or she decides more easily whether a concept belongs to a particular category (Richards, Goldfarb, Richards, & Hassen, 1989).

Concept formation is a process that occurs via the discovery of necessary and sufficient characteristics, both concrete and abstract. In this sense, the current study has shown that multimedia aids students in identifying concepts, classifying them according to relevant characteristics, making inferences about them, and reaching generalizations about them. A previous study found a difference, though not statistically significant, in favor of students taught in a multimedia-based learning environment compared with those taught in a traditional classroom environment (Altınsık, & Orhan, 2002), while another has indicated that multimedia effects a positive change in the academic achievement of students with low scores (Issa, Cox, & Killingsworth, 1999). These latter researchers also found out that students did not exert enough effort during activities engaged during the teaching period, perhaps since students were accustomed to teacher-centered teaching and not activities requiring their active participation. Smeets and Mooji (2000) have furthermore reported no difference in the academic achievement of students educated in multimedia-based learning environment compared to that of students taught in a traditional environment. In sum, previous research has revealed in different conditions that teaching conducted in multimedia-based learning environments generally benefits students’ academic achievement.

Table 4.
The Groups’ Pre- and Posttest Attitude Scores

<table>
<thead>
<tr>
<th>Source of variance</th>
<th>Sum of square</th>
<th>df</th>
<th>Mean square</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Among groups</td>
<td>439.185</td>
<td>1</td>
<td>439.185</td>
<td>4.698</td>
<td>.035</td>
</tr>
<tr>
<td>Within groups</td>
<td>4860.963</td>
<td>52</td>
<td>93.480</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>5300.148</td>
<td>53</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As shown in Table 4, the difference in means ($F = 4.698$) by one-way ANOVA with the pre- and post-attitude scores of students taught in a multimedia-based learning environment and those not was greater than 4.08, the $F$ table value ($df = 52, p < .05$).

A range of researchers have argued that multimedia positively affects the attitudes of students toward courses. Altınsık & Orhan (2002), Woodrow and Mayer-Smith (2000), Mayer-Smith & Pedretti (2000) and Geban, Ertepınar, Yılmaz, Altın and Sahbaz (1994) have all reported that teaching in multimedia-based learning environments garners more positive attitudes of students toward the course compared to teaching conducted in more traditional environments.

The present study’s findings indicate that multimedia benefited the attitudes of students toward the social studies course. The influence of teaching conducted in a multimedia-based learning environment upon the important dimension of attitude in such a short time is attributable to the fact that the information load offered to students via multimedia was distributed among sensory channels in a balanced manner. The findings also show that the study affected the attitudes of students toward the social studies course though the study period lasted only 6 weeks and covered only one unit. To reach more viable conclusions about the effect of multimedia upon attitude, controlled studies should be conducted over a longer period. The findings of the study are also limited to the classes in which the study was conducted and to the environments in which the concepts of the relevant unit were taught.

Discussion and Conclusion

Each individual constructs concepts in his or her mind from experience. People perceive and reconstruct sensations received by multiple sensory organs in the concept-formation process, and they attribute meanings to the concepts constructed by way of language. Every meaning attributed includes concrete experiences and abstractions formed based on those same concrete experiences. Concepts are thus cognitive products bearing both concrete and abstract characteristics that emerge as a product of both language and the power of the individual’s thinking. Research has suggested that individuals can fail to develop all features of the abstract operations
stage by themselves; even if they become cognitively ready for abstract operations, they can complete such development only when they receive stimuli and incentives from their environments (Cengelci, 1996). When individuals feel alienated from the community in which they live because they think logically, they distance themselves from such thought. In the concept-learning process, students therefore need to be supported by multimedia and integrated into the process logically and emotionally. This process requires analyzing concepts well, demonstrating the relationships between them, understanding conceptual content through generalizations, and using acquired knowledge in different fields. The arrangement of concepts in the mind is also of vital importance in terms of the quality of education.

In the conceptualization process, the fulfillment of relevant functions by cognition mostly depends on the proper, adequate, and quintessential delivery of stimuli received by sensory channels. This process can be efficiently used in the learning–teaching process yet only with a balanced distribution of stimuli among sensory channels and without overload on any channel. Using knowledge with a balanced distribution among different sensory channels in the learning–teaching process is called **multimedia-based education**.

In this context, the present study sought to reveal how students learned concepts covered in a single unit in a social studies course differently in a multimedia-based educational environment and the existing, otherwise similar environment, as well as differences among the attitudes of those students toward the course.

Among discernable conclusions, a statistically significant difference between test questions answered correctly about identifying, classifying, abstracting, and associating concepts with their daily lives favors students taught in a multimedia-based learning environment over those taught in the existing, otherwise similar environment. Another significant difference in attitude scores favors multimedia-based education over education in the existing classroom environment.

These conclusions suggest that students’ functional use of concepts depends on their capability to distinguish concepts semantically. In concept teaching, the semantic dimension of concepts may be provided first, followed by suitable examples concerning their use in different situations. The concept-teaching process may proceed to functional use based on students’ experiences following activities involving the identification and association of concepts and making inferences about them.

To enable the introduction of more effective learning experiences concerning concept teaching, teachers should be informed about new developments in concept teaching, the use of information technologies, and how to appropriately prepare teaching materials to students’ acquisition of necessary knowledge and skills.

If concepts are taught completely and perfectly through multimedia, more correct generalizations could be produced. To optimize this process, the ingredients of generalizations should be explained and emphasis placed on the sub-concepts suggested by the generalizations. Furthermore, the analyses of concepts covered in a
particular course should be performed by domain experts, whereby such concepts can be made available for use by teachers.

Based on the present study’s findings, research aimed at multidimensional inferences should be conducted in disciplines other than social studies regarding the functionality of concept teaching and the effective use of multimedia, and the effects of multimedia-based practices on learning and student attitudes in other courses should be examined. The comparison of results gained through such examination could contribute to improving concept teaching and our understanding of thinking processes.

References


Çoklu Ortama Dayalı Öğrenmenin Öğrencilerin Kavram Öğrenme Düzeylerine ve Tutumlara Etkisi

Atıf:
Doi: 10.14689/ejer.2015.60.14

Özet

Araştırmanın Yöntemi:

Araştırımda Kullanılan Ölçme Araçları:
Araştırımcılar tarafından geliştirilen kavram testinin madde analizleri sonucu alpha güvenilirlik katsayısı .703 testin
H. Ömer Beydoğan & Zeynel Hayran

standart sapması 3,004, aritmetik ortalaması 8.831, skewnes -0,328 ve kurtosis -0,668 ve mean biserial ise 0,595 olan 28 soru yer almıştır. Ölçme aracının ortalama güçlüüğü 0,48 ve Kr-20 güvenirlüğü .73 olarak bulunmuştur. Öğrencilerin Sosyal Bilgiler dersine karşı tutumlarını belirlemek için 28 soruluk tutum ölçeği geliştirilmiş. 5’li likert tipinde hazırlanan Sosyal Bilgiler Dersi Tutum Ölçeğinin güvenirlük katsayısı r .845 bulunmuştur. Açılama faktör analizi sonucu Kaiser-Meyer-Olkin Measure of Sampling Adequacy 909; Bartlett’s Test of Sphericity testi sonucu 378 serbestlik derecesinde Chi-Square 2489,189 olarak hesaplanmıştır. Ölçek üç alt faktörden oluşmuş olup üç faktör toplam varyansın 53,683’ü açıklandmaktadır.

Bulgu, Sonuç, Yorum ve Öneriler: Araştırma da uyaran açısından çoklu ortamda kavramları öğrenen öğrencilerle mevcut öğrenme ortamında kavramları öğrenen öğrencilerin ön test ve son test puanları üzerinden tek yönlü varyans analizi yapılmıştır. Kavramları işlevsel kullanmadan (F: 19,04); adlandırmadan (F: 5,95), sınıflandırmadan (F: 10,03) değerleri tablo F değerinden büyük bulunmuştur. İki grubun aritmetik ortalamaarasında fark “adlandırma”, “sınıflama” ve “genellemeye” düzeyinde deney grubunun lehine istatistiksel olarak anlamli bir fark olduğunu göstermektedir. Kavramları “adlandırma”, kavramları “birbiriyle ilişkilendirme ve sınıflama”, “genellemelere ulaşma” ve kavramları “işlevine uygun kullanma”, düzeyleri arasında 52 serbestlik derecesinde P<.05 anlamli düzeyde deney grubu lehine anlamli bir fark olduğunu göstermektedir. Kavramları çoklu ortamda öğrenen öğrencilerle mevcut sınıf ortamında öğrenen öğrencilerin Sosyal Bilgiler dersine karşı tutumları arasında deney grubu lehine anlamli bir ve farklılığın olduğu görülmektedir.

Kavramların niteliklerinin öğretiminde çoklu ortamın daha etkin olduğu, bilginin birden fazla duyum kanalına dengeli yüklenmesinin öğrencilere kavramları adlandırmaları, sınıflama, genelleme yeteneklerini olumlu yönde etkilemektedir. Kavramlaştırma süreçinde bilişin işlevini yerine getirebilmesi büyük ölçüde duyum kanallarından gelen uyaranları etkili, doğru ve yeterli düzeyde biliş akıtlarına yardımcı etmektedir. Kavramların somut ve soyt yönlerine ilişkin özelliklerini keşfetmelerini ve anlamlarını artırma artırmaktadır. Öğrenme-öğretim sürecinde bilginin duyum kanallarına aşı bir yüklenmeden dengeli dağıtılarak kullanılması çoklu öğretim ortamında başarıyı artırmaktadır.

Sonuç olarak, uyaran zenginliği içeren ortamlara öğrencilere hem analitik ve hem de bütünsel öğrenmeleri sağlamakta, öğrendikleri arasında bağ kurmalarını kolaylaştırılmaktadır. Çoklu ortamlardan gelen uyaranlar çocuklara, kavramların niteliklerini algılamayı kolaylaştırıldığı gibi daha kısa sürede de olsa öğrencilere derse karşı tutumlarında iyileşmeye yol açmaktadır. Öğrenciler içinde yaşadıkları çevrede kullanılan sözcükleri kullanarak kavramları adlandırır, birbiriyle ilişkilendirir yeni çıkarımlarda ve genellemelerde bulunur, kavrama yeni boytlara katarak içeriği uygun anlamları birbirine bağlar.

Bu araştırmanın bulgularına dayalı olarak, aşağıdakiler öneriler dile getirilmişdir.
1. Öğretmenlerin kavram öğretiminde öğrencilerine daha etkili öğrenme yaşantıları sağlayabilmeleri için, kavram öğretimi, bilişim teknolojileri, öğretim materyali hazırlanma gibi yetenekleri edinmeleri sağlanabilir.

2. Öğretmenlere kavram öğretim sürecinde, öğretim teknolojilerini ve öğretim materyallerinin etkin kullanılmasını için hizmet içi eğitim verilebilir.

3. Elde edilen bulguların farklı disiplin alanlarındaki kavramların öğretimindeki işlevsellüğü gözden geçirilerek çoklu ortamın farklı ortamlarda etkin kullanılabilirliğine ilişkin yeni araştırmalar teşvik edilebilir. Yapılacak yeni araştırmaların, uzun süreli araştırmalara dönüştürülerek analitik sonuçlar elde edilebilir.

4. Ders içeriklerinde yer alan kavramların, kavram analizleri alan uzmanlarına yapılarak ders kitaplarında öğretmenlerin kullanılabileceği hale getirilebilir.


6. Uyaran zenginliği içeren ortamlara dayalı uygulamaların diğer derslerdeki öğretmenler ve öğrenci tutumları üzerindeki etkiler incelenerek sonuçlar karşılaştırılabilecektir. Elde edilen bulgular kavram öğretimi ve düşünme sürecinin geliştirilmesi noktasında kullanılabilir.

Anahtar kavramlar: sınıflandırma, kavramsalştırma, işlevseld kullanım, genelleme, belirleme, çoklu uyaran.
H. Ömer Beydoğan & Zeynel Hayran
A Metaphor Analysis of Elementary Student Teachers’ Conceptions of Teachers in Student- and Teacher-Centered Contexts

Sibel DURU*

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Abstract

Problem Statement: Student teachers’ beliefs and conceptions affect not only what and how they learn in teacher education programs, but also their future professional development in their teaching careers. Examining and understanding student teachers’ beliefs and conceptions is therefore crucial to improving their professional preparation and development, as well as the effectiveness of teacher education.

Purpose of the study: The purpose of this study was to explore elementary student teachers’ beliefs and conceptions about teaching in the contexts of student- and teacher-centered educational perspectives.

Method: This study employed qualitative research methodologies by asking 267 prospective teachers to provide a metaphor characterizing teachers. Both quantitative and qualitative data analyses were used for the study.

Findings and results: The results of analysis represented 113 metaphors made by student teachers about teachers—for example, they are gardeners. Results of descriptive analysis show that of the 267 student teachers, 227 (85.7%) had teacher-centered beliefs, 11 (4.1%) had student-centered beliefs, and 29 (10.1%) had mixed beliefs. The student teachers had no misconceptions about teacher-centeredness, meaning that all misconceptions and poorly structured beliefs were related to student-centeredness.

Conclusions and recommendations: The study showed that the teacher-centered approach is quite common among student teachers in Turkey. As a result, teacher educators should provide various opportunities for and

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model student-centered approaches so that student teachers can critically examine their beliefs and realize other educational possibilities. Furthermore, most participants lacked a consistent cognitive structure about teaching, largely due to misconceptions related to guidance and active learning, which require more in-depth research. Student teachers also described teachers’ and students’ roles with stereotypical metaphors, including teachers as knowledge givers who know everything and teachers as social controllers who disseminate dominant cultural values. Acknowledging these misconceptions can allow teacher educators to better design courses, classroom discussions, and assignments to help student teachers develop new pedagogical knowledge and beliefs.

**Keywords:** Teacher education, student teachers’ beliefs, teaching metaphors, educational approach

**Introduction**

In the development of cognitive psychology and interpretations of different educational philosophies such as progressivism and constructivism, the topic of teachers’ beliefs, conceptions, and personal knowledge has gained broad interest among researchers. These studies have primarily focused on preservice teachers’ beliefs about teaching and learning (Britzman, 1986; Chan, 1999; Duru, 2006; Green & Zimmerman, 2000; Löffsöm & Poom–Valickis, 2013; Minor, Onwuegbuzie, Witcher, & James, 2002; Pajares, 1992; Richardson, 1996; Schepens, Aelterman, & Vlerick, 2009) and generally confirmed that preservice teachers’ beliefs affect not only how and what they learn in teacher education programs, but also their future professional development as in-service teachers. At the same time, other research has shown the effectiveness of student-centered education on students’ learning and upon student teachers’ educational beliefs and professional development, all given the needs of today’s societies (Fasko & Grubb, 1997; Green & Zimmerman, 2000; Hein, 2002). Teacher education programs should therefore strive to help student teachers to develop their professional knowledge, skills, and consciousness while adopting student-centered approaches. In fact, some studies have additionally demonstrated that teachers who implement traditional, teacher-centered approaches behave, act, and conceive things differently from those who apply student-centered approaches (Fang, 1996; Richardson, 1996).

Since student teachers’ beliefs are stubbornly resistant to change (Pajares, 1992), investigating and understanding teacher candidates’ beliefs and conceptions is vital to support their professional preparation, development, and future classroom practices (Pajares, 1992). As Eisenhart, Shrum, Harding, and Cuthbert (1988) have pointed out, “If teachers’ [student teachers’] persistent beliefs are not taken into account when designing reforms or constructing research, then we are not optimistic that good faith efforts to improve education will work” (p. 67). Especially in Turkey, researchers have not yet fully investigated pre-service teachers’ beliefs specifically related to teaching; however, such knowledge from research is pivotal for the
evaluation, improvement, and redesign of teacher educational programs. An examination of pre-service teachers’ beliefs in Turkey thus promises to provide information not only concerning how teacher education programs in the country currently prepare student teachers for their future occupations, but also concerning changes that are necessary in new teacher educational programs. In response, the purpose of this study was to investigate elementary student teachers’ beliefs about the roles of teachers, as well as of students, and to investigate their poorly structured beliefs and misconceptions in student- and teacher-centered contexts.

**Teacher-Centered versus Learner-Centered Beliefs**

In the light of educational research, scholars interested in teachers’ beliefs, ways of thinking, and philosophies have constructed what some consider to be a dichotomy between teacher-centered and student-centered approaches that can facilitate discussions about student teachers’ educational beliefs. Teacher-centeredness generally represents the continuing effects of positivist, objectivist, connectionist, essentialist, and behaviorist perspectives in schools, society, and education faculties (Noble & Smith, 1994). By contrast, student-centeredness represents progressivism, humanism, and constructivism.

From the teacher-centered perspective, “Being a teacher . . . means identifying knowledge that is certain, breaking it into manageable bits, and transmitting it to students in an efficient fashion” (Zeichner & Tabachnick, 1981, p. 9). From this perspective, the teacher as an expert selects, determines, and evaluates the educational process on the behalf of students, who lack the capacity to know what they need to learn. Accordingly, the chief roles of the students are to accept, receive, memorize, and repeat what their teachers teach. According to teacher-centered pedagogy, learning results in behavioral changes created by a system of behavioral responses to stimuli (Brooks & Brooks, 1999; Driscoll, 2000; Fosnot & Perry, 2005). To bring about behavioral change in students, teachers should set specific objectives for each lesson to reach certain outcomes so that students’ related skills can be improved along with their mental functioning (Fosnot & Perry, 2005). In teacher-centered classrooms, teachers believe that whole class instruction involving great reliance on textbooks and standardized testing to measure learning outcomes is the best way for students to learn (Brooks & Brooks, 1999).

By contrast, from the student-centered perspective, the top role of teachers involves facilitating students’ learning, creating a democratic learning environment, and helping students’ total development, especially that of their habit of mind. The primary purpose of having teachers act as facilitators is to help students to become self-directed and self-empowered. In other words, a major responsibility of teachers is to investigate what is happening in the minds of students and how they learn (von Glasersfeld, 1998).

A student-centered teacher believes that learning is a meaning-making process of internalization and that knowledge is socially constructed by learners in a way that requires self-regulation and self-reflection (Driscoll, 2000; Fosnot & Perry, 2005; Richardson, 1996). In this model, learning and teaching processes are largely based
on existing experiences that provide us with empirical and reflective abstractions—concepts, theories, relations, and models—developed actively in the assimilation, accommodation, and equilibrium process (Brooks & Brooks, 1999; von Glasersfeld, 1998). Students’ needs, prior knowledge, interests, and current understandings are paramount for student-centered teachers in facilitating student learning and guiding their students’ development. Student-centered teachers view learning as a process in which they need to use different teaching strategies for students’ different needs (Brooks & Brooks, 1999).

In another sense, teacher-centered teachers, as people who hold all of the power in the learning and teaching processes, expect the same skills-based learning outcomes from all students. On the contrary, teachers practicing student-centered beliefs consider social negotiation, the creation of a learning community, and self-directed learning opportunities involving a wide range of knowledge and skills to be the most important ways to address students’ different learning needs and interests (Noble & Smith, 1994). Student-centered teachers pay special attention to what raises students’ curiosity in order to motivate students to learn, even if it differs from what the curriculum intends to teach. By contrast, teacher-centered teachers try mostly to motivate students with positive and negative reinforcements (Driscoll, 2000).

Student Teachers’ Beliefs

Although the complexity of belief systems makes defining belief difficult, the term has been described to constitute personal theories, opinions, judgments, conceptions, and perspectives (Chan, 1999). In the present study, student teachers’ beliefs thus refers to student teachers’ conceptions about and perspectives on teaching. Beliefs can be categorized as either primitive or derived beliefs (Rokeach, 1968); whereas derived beliefs that help a person to understand non-observable events are formed from both primitive beliefs and authoritative outside sources such as books and popular culture (Fishbein & Arjen, 1975; Green, 1971; Rokeach, 1968), primitive beliefs are more central to the belief systems, for they are formed by direct experiences with objects, agents, or events and may have strong connections with the self (Fishbein & Arjen, 1975; Green, 1971; Pajares, 1992; Rokeach, 1968). Contrary to many professionals, student teachers join school faculty with a great deal of real-life experiences and images of teaching (Britzman, 1986; Chan, 1999; Weber & Mitchell, 1995). Their observation of negative and positive aspects of teaching as students shapes their initial educational beliefs regarding who teachers are, how learning occurs, and what the roles of teachers and students are in learning environments. These earlier beliefs are highly resistant to change (Pajares, 1992). Indeed, research has shown that student teachers’ initial educational beliefs filter all new information, meaning that student teachers cannot organize conceptions of teaching in a systematic way (Chan, 1999; Pajares, 1992; Richardson, 1996). Consequently, student teachers’ initial beliefs affect what and how they learn in teacher education programs even if those programs focus on student-centered education.

Kile (1993) investigated pre-service teachers’ beliefs and concluded that students with student-centered beliefs understand the complexities of teaching and learning
better than students with teacher-centered beliefs (cited in Richardson, 1996). Furthermore, student teachers who tend to uphold student-centered beliefs are more willing to accept and engage in constructivist pedagogies than student teachers exhibiting teacher-centered beliefs (Sinatra & Kardas, 2004). Investigating pre-service teachers’ beliefs about teaching and learning, Britzman (1986) concluded that student teachers with early classroom experiences construct ideal beliefs based on cultural myths. In her study, three cultural myths consistent with teacher-centeredness emerged: that everything depends on the teacher; that teachers are experts who know everything, implying that knowledge is immutable; and that teachers are self-made. In other words, student teachers tend to believe that personality is the most important factor in determining who will become an effective teacher.

Similar to those of Britzman (1986), Joram and Gabrielle’s (1997) results revealed that student teachers who believe that teachers are self-made also believe that they have nothing to learn about teaching from their teacher preparation courses. Other scholars have indicated that student teachers as students experience mostly traditional pre-K–12 education, in which they internalize dominant cultural beliefs about teaching and learning, including that knowledge is given by teachers, that learning to teach occurs with “what works,” and that teachers should have control of the classroom in order to provide all learning opportunities to all students (Britzman, 1986).

Understanding Student Teachers’ Beliefs about Teaching through Metaphoric Images

Despite the several theories of metaphor, metaphors are generally described as familiar concepts, events, or objects used for explaining other concepts, events, or objects that are more complicated and abstract (Thomas & Beauchamp, 2011). Since 1970, research on metaphors has accelerated, especially in psychology. These studies have provided broad information about the content, structures, and functions of metaphors (Draaisma, 2007) and shown that metaphors are not simple analogies between two things, but are connected directly to a person’s cognitive structure. In this sense, people use the metaphors as important cognitive devices to explain mental images derived from their experiences (Draaisma, 2007).

In recent years, metaphors have been used in educational research as a research instrument, for they provide broad opportunities to explore and analyze participants’ mental images that are not consciously recognized (Nikitina & Furuoka, 2008). Moreover, metaphors indirectly facilitate and simplify explanations of our experiences and personal conceptions (Draaisma, 2007). Given these characteristics, using metaphors as a research instrument will be highly effective to reveal student teachers’ specific initial core educational beliefs—even implicit ones.

Research has shown that student teachers produce a variety of highly definitive metaphors about teaching (Akkuş, 2013; de Leon–Carillo, 2007; Lofström & Valickis, 2013; Nikitina & Furuoka, 2008; Saban, Koçbekir, & Saban, 2006; Seung, Park, & Narayan, 2011; Shaw & Mahllos, 2008). Through these metaphors, some researchers have investigated student teachers’ constructivist and behaviorist beliefs about
teaching as related to the effects of teacher education programs. Leavy, McSorley, and Bote (2007) compared US and Irish elementary student teachers’ beliefs about teaching and investigated the effect of educational methodology courses on microteaching experiences. At the beginning of the course, 49% of participants’ metaphors were consistent with behaviorist perspectives, while 24% represented constructivist perspectives. Other metaphors were categorized as situative and self-referential. At the end of the course, although Irish elementary student teachers were generally resistant to change, the proportion of metaphors reflecting constructivist views of teaching and learning increased considerably from 24% to 44%, largely as a result of the change in US preservice teachers’ metaphors.

Seung et al. (2011) examined 103 elementary pre-service teachers’ beliefs about science teaching and learning at the beginning and end of science courses. They similarly concluded that most participants (57%) come to these courses with traditional views. During the courses, though participants’ traditional beliefs decreased and their constructivist beliefs increased, results showed that many participants tended to keep their traditional views even as they tried to accept constructivist ones.

In sum, previous studies have shown that using metaphors as a research instrument can serve to elucidate people’s implicit beliefs, the structuring of belief systems, and the characteristics of how student teachers’ beliefs change.

Method

Research Design

To seek to answer the research questions, this study employed qualitative research methods by asking prospective teachers to provide a metaphor characterizing teachers, explain teacher and student roles based on the metaphor, and clarified whether the metaphor represents a student- or teacher-centered perspective.

Research Sample

A total of 267 elementary student teachers (196 women and 71 men) within the Elementary Education Department at a university in mid-western Turkey participated in this study during the 2012–2013 academic year. The participants included 73 freshman (57 women and 16 men), 83 sophomore (56 women and 27 men), 53 junior (42 women and 11 men), and 58 senior (41 women and 17 men) student teachers in an elementary teacher education program. The ages of the participants ranged from 18 to 43 years with a mean of 20.61.

Research Instrument and Procedure

For this study, a survey was prepared, the first part of which asked questions related to participants’ personal and educational backgrounds, including those addressing their age, gender, and year of study. The second part included four open-
ended questions designed to allow respondents to provide a metaphor characterizing a teacher, explain teacher and student roles based on the metaphor, and clarify whether the metaphor represents a student- or teacher-centered perspective.

Before distributing the survey, the researcher provided information about the study that stressed the participants’ voluntary participation and the confidentiality of their information during the entire data collection period. In a 45-minute class session, participating student teachers were each asked to construct a metaphor of teachers with as much detail as possible.

**Data Analysis**

In this study, both quantitative and qualitative data analyses were used. The Statistical Package for the Social Sciences software package was used for descriptive statistical analysis to describe the basic features of the data. For qualitative analysis, all metaphors were labeled. The researcher combined identical metaphors and read all metaphors several times to gain an understanding of the context. With descriptive qualitative analysis, the researcher coded the data four times at different periods. Student teachers’ responses were given to two instructors in the Guidance and Counseling Education Department who served as independent raters to code the metaphors separately as student-centered, teacher-centered, or both student- and teacher-centered (i.e., mixed) perspectives. Interrater reliability was 91% for one independent rater and 82% for the other. For differently rated metaphors, the researcher and both raters resolved discrepancies via discussion.

Coded metaphors and students’ responses about whether their metaphors represented teacher-centered, student-centered, or mixed perspectives were compared to evaluate student teachers’ poorly structured beliefs and misconceptions. To identify students’ misconceptions and poorly structured beliefs, content analyses were performed based on the comparison and contrast of 185 student teachers’ answers and the researcher’s coding.

**Results**

**Student Teachers’ Metaphors**

In this study, participating student teachers produced 113 metaphors for the concept of teacher. Some dominant metaphors were compass (19), sun (15), light (11), mother and father (10), sculptor (8), mother (8), tree (8), gardener (7), candle (7), guidance (7), farmer (6), soil (6), book (6), family (5), friend (5), computer (4), lighthouse (4), guide (4), technical director (4), painter (3), maestro (3), mirror (3), lantern (3), pathfinder (3), and navigational device (3). Of the 113 metaphors, 99 represented the teacher-centered perspective, whereas the student-centered perspective emerged in nine metaphors and the remaining 23 were labeled as a mixed (i.e., both a student- and teacher-centered) perspective. Table 1 shows the categories of the metaphors.
### Table 1.

**Classification of Student Teachers’ Metaphors**

<table>
<thead>
<tr>
<th>Categories</th>
<th>Metaphors (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher centered</td>
<td>227 Compass (19), sun (15), light (11), mother and father (10), sculptor (8), mother (8), tree (8), gardener (7), candle (7), guidance (7), farmer (6), soil (6), book (6), family (5), friend (5), computer (4), lighthouse (4), guide (4), technical director (4), painter (3), maestro (3), mirror (3), lantern (3) pathfinder (3), navigational device (3), everything (2), family member (2), brain (2), honey bee (2), bridge (2), locomotive (2), bus (2), comb (2), potter (2), sewing machine (2), the Internet (2), ocean (2), rain (2), flower (2), model (2), Mustafa Kemal (Founder of the Turkish Republic) (1), someone educated by society (1), a mirror of society (1), chief of a treatment plant (1), nature (1), architect (1), parents (1), father (1), sibling (1), caretaker (1), life coach (1), shepherd (1), chorister (1), life helper (1), seedling grower (1), coach (1), translator (1), captain (1), world (1), vitamin (1), window (1), vehicle (1), sponge (1), craftsman (1), ironsmith (1), cook (1), rasp (1), glue and cleaner (1), the four seasons (1), mill (1), sharpener (1), fractional distillation (1), filter (1), behavior engineer (1), self-renewer (1), doorkeeper (1), scriptwriter (1), writer (1), journalist (1), salesperson (1), breast (1), sea (1), library (1), data cube (1), pitcher full of water (1), treasure map (1), cloud (1), water (1), light source (1), idol (1), road map (1), traffic sign (1), traffic officer (1), team coach (1), leader (1)</td>
</tr>
<tr>
<td>Student centered</td>
<td>11 Guide (2), compass (2), world (1), lighthouse (1), organizer (1), streetlamp (1), key (1), rainbow (1), mayor (1)</td>
</tr>
<tr>
<td>Mixed</td>
<td>29 Compass (3), light (2), lighthouse (2), gardener (2), bus (2), family (1), parent (1), maestro (1), mirror (1), fractional distillation (1), friend (1), writer (1), farmer (1), tree (1), sun (1), guidance (1), technical director (1), glasses (1), ladder (1), key (1), life itself (1), bulb (1), cement (1)</td>
</tr>
</tbody>
</table>

After content analyses, teacher-centered metaphors were found to represent five different meanings: teacher as cultural transmitter, teacher as social or behavioral engineer or controller, teacher as molder, teacher as knowledge giver, and teacher as pathfinder. Since most student teachers used several meanings of the teacher-centered perspective in single metaphors, teacher-centered metaphors were not categorized because the metaphors did not concentrate on a single meaning but several meanings combined. For example, one student teacher explained that
A teacher is a sharpener, because teachers try to convert students into good citizens and self-aware individuals. They sculpt the material. The role of teachers is to educate and shape students, to construct students’ knowledge, and to prepare students as good citizens for society. The role of students is to open themselves to obtaining knowledge and to ask questions.

The role of teachers in this kind of metaphor was conceived to involve giving knowledge to students, demonstrating worthy values and behaviors, educating students based on dominant cultural values, and preparing them for their futures. Perhaps unsurprisingly, teachers were the authority figures in the classroom in all teacher-centered metaphors. In some metaphors, student teachers expressed the importance of individual differences as a means of easy manipulation. Furthermore, student teachers thought that the roles of students were to listen to and respect teachers, to prepare for class, and to do their homework.

Student-centered metaphors emphasized teachers as learners and facilitators of student learning and development. In addition to their facilitatory role, teachers were also conceived to develop students’ high-level skills, including creative, reflective, and critical thinking, as well as their total development. Individual and cultural differences were also underscored as a means of more effective communication, sharing and constructing new meaning, and exploring students’ thinking. The character of students was considered to be curious, interrogative, and self-aware. One example from student teachers’ responses reads:

A teacher is a key, because teachers open every lock. Students are like closed boxes with jewels inside. Teachers help students to discover these jewels and use them to meet their needs.

In the mixed metaphors, student teachers suggested the belief that teachers are mainly knowledge givers, but that students’ thinking, interests, and abilities were very important in designing different kinds of effective instruction.

A teacher is a gardener. A gardener first throws seeds into the soil, and then he or she helps them blossom and sometimes prunes their unnecessary branches. The role of teacher is to know students’ individual differences and use different instructional methods for these differences. Teachers need to ask questions to students so that students think about related ideas. Students should be able to attain knowledge by themselves and must fulfill their responsibilities in the classroom.

Perhaps the most interesting result of the study is that some of the same metaphors were used for different perspectives. For example, the metaphor of the lighthouse was used for teacher-centered, student-centered, and mixed perspectives, whereas that of the world was used for student- and teacher-centered perspectives. Some examples of mixed usage in the student teachers’ responses are as follows:
A teacher is a lighthouse, because like ships, students move with the help of the teacher.

A teacher is a lighthouse, because in our age people construct their knowledge based on their abilities and experiences. As a result, teachers are guides to students. The main role of a teacher is to prepare a secure learning environment for students.

A teacher is a lighthouse, because teachers are guides like lighthouses transporting students along the path of targeted goals. Society shows development as a result of teachers. The role of teachers is to discover students’ potential. The role of students is to try to become aware of their potential.

Like that of the lighthouse, the metaphors of family, mother and father, gardener, maestro, world, mirror, friend, farmer, tree, sun, light, guidance, compass, technical director, and key all demonstrated different meanings for different student teachers.

**Student Teachers’ Beliefs**

According to results of the study, 163 (61.0%) student teachers believed that their metaphors represented a student-centered perspective, 70 (26.2%) that theirs represented a teacher-centered perspective, and 34 (12.7%) that theirs represented a mixed perspective. Table 2 shows the student teachers’ beliefs about their metaphors.

**Table 2.**

*Student Teachers’ Beliefs About Their Metaphors*

<table>
<thead>
<tr>
<th>Educational Approaches</th>
<th>Year of study</th>
<th>Gender</th>
<th>Teacher-centered</th>
<th>Student-centered</th>
<th>Mixed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Freshman</td>
<td></td>
<td>Women</td>
<td>18</td>
<td>32</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Men</td>
<td>2</td>
<td>13</td>
<td>9</td>
</tr>
<tr>
<td>Sophomore</td>
<td></td>
<td>Women</td>
<td>22</td>
<td>39</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Men</td>
<td>13</td>
<td>48</td>
<td>14</td>
</tr>
<tr>
<td>Junior</td>
<td></td>
<td>Women</td>
<td>3</td>
<td>7</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Men</td>
<td>2</td>
<td>18</td>
<td>7</td>
</tr>
<tr>
<td>Senior</td>
<td></td>
<td>Women</td>
<td>5</td>
<td>12</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Men</td>
<td>5</td>
<td>29</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>70</td>
<td>26.2</td>
<td>163</td>
</tr>
</tbody>
</table>
By some contrast, the results of descriptive analysis revealed that of the 267 student teachers, 227 (85.7%) had teacher-centered beliefs, 11 (4.1%) had student-centered beliefs, and 29 (10.1%) had mixed beliefs. In terms of year of study, the freshmen student teachers had the most teacher-centered beliefs of all years of study. Table 3 presents the student teachers’ beliefs.

### Table 3.

**Student Teachers’ Beliefs About Teaching**

<table>
<thead>
<tr>
<th>Educational Approaches</th>
<th>Year of study</th>
<th>Gender</th>
<th>Teacher-centered</th>
<th>Student-centered</th>
<th>Mixed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Freshman</td>
<td>Women</td>
<td></td>
<td>55</td>
<td>96</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Men</td>
<td></td>
<td>16</td>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td>Sophomore</td>
<td>Women</td>
<td></td>
<td>47</td>
<td>84</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Men</td>
<td></td>
<td>24</td>
<td>89</td>
<td>1</td>
</tr>
<tr>
<td>Junior</td>
<td>Women</td>
<td></td>
<td>34</td>
<td>81</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Men</td>
<td></td>
<td>8</td>
<td>73</td>
<td>1</td>
</tr>
<tr>
<td>Senior</td>
<td>Women</td>
<td></td>
<td>31</td>
<td>76</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Men</td>
<td></td>
<td>12</td>
<td>70</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>227</td>
<td>85.0</td>
<td>11</td>
</tr>
</tbody>
</table>

Student Teachers’ Poorly Structured Beliefs and Misconceptions about Student-Centeredness

The results of analysis illustrated that participating student teachers did not have any misconceptions about teacher-centeredness. Accordingly, all of their misconceptions and ill-structured beliefs related to student-centeredness. This result indicated that some student teachers had no clear conceptions about student- or teacher-centered perspectives and misconceptions related to active learning and guidance conception. At the same time, some students associated a few effective learning environment features with student-centeredness. Though multiple misconceptions emerged in the student teachers’ responses, in analysis these responses were the chief focus for clarifying differences among student teachers in terms of year of study. Table 4 shows the student teachers’ misconceptions and the approximate number of participants with those misconceptions.
### Table 4.
Student Teachers’ Misconceptions

<table>
<thead>
<tr>
<th>Misconceptions</th>
<th>Freshman</th>
<th>Sophomore</th>
<th>Junior</th>
<th>Senior</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$n \approx$</td>
<td>$n \approx$</td>
<td>$n \approx$</td>
<td>$n \approx$</td>
<td>$n \approx$</td>
</tr>
<tr>
<td>No conception</td>
<td>27</td>
<td>5</td>
<td>7</td>
<td>9</td>
<td>48</td>
</tr>
<tr>
<td>Guidance</td>
<td>14</td>
<td>34</td>
<td>25</td>
<td>25</td>
<td>98</td>
</tr>
<tr>
<td>Active learning</td>
<td>10</td>
<td>5</td>
<td>8</td>
<td>8</td>
<td>31</td>
</tr>
<tr>
<td>Development of students</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Fun activities</td>
<td>1</td>
<td></td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Safe place</td>
<td>1</td>
<td></td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Process</td>
<td></td>
<td></td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Communication</td>
<td></td>
<td></td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Students’ interests and needs</td>
<td></td>
<td></td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Students’ differences</td>
<td>1</td>
<td></td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>52</td>
<td>44</td>
<td>44</td>
<td>45</td>
<td>185</td>
</tr>
</tbody>
</table>

In all, 48 student teachers, many of them freshman students, did not have any clear conception about any educational perspectives. These students thought that their metaphors represented student-centered or mixed perspectives, and they explained that “everything is for the children”: “Without children, teachers are nothing, and without teachers, children are nothing,” and “These are the students who are to be formed and educated for society.” Some examples from the student teachers follow:

A teacher is a sun, because teachers reveal unknown aspects of students. Teachers liberate students from darkness to light. The role of teachers is to train students to behave in desirable ways, to transfer information, and to educate students to be good people. The role of students is to receive the transferred knowledge and apply it and to discover themselves. My metaphor is student centered, because teachers act in terms of students’ shortcomings and because students can express themselves easily.

A teacher is a mother and father, because teachers care for children. They prepare them for life and society. The role of teachers is to know about students, give instruction considering their developmental stages, give them confidence, and prepare them for life. The role of students is to fulfill the
responsibilities and duties assigned to them. This metaphor represents a student-centered perspective, because it is the students who have to learn and prepare for life.

It was additionally observed that the most popular misconception related to guidance \((n = 98)\) and was the most common misconception among sophomore student teachers. Student teachers embodied the concept of guidance in metaphors of teachers as pathfinders, directors, and models, who guide students toward the discovery of true knowledge, appropriate behavior, and the right paths in life, not in metaphors of teachers as facilitators of students’ development and learning. Similarly, active learning \((n = 31)\) as described by student teachers formed another misconception. Student teachers expressed that if students actively engaged in classroom activities in any way involving a transmitter-receiver relationship, then they construct their own knowledge. For example:

A teacher is a navigational device because he or she is a guide and pathfinder. For example, teachers show by doing addition in math, and then it is up to students to do the rest. Navigational devices show the road to take, but to take that road is up to the students. The role of teacher is to guide them.

A teacher is soil, because he or she provides nutrients that students need. With their wise knowledge, teachers prepare students for life. The teacher’s role is to provide guidance to students. The student’s role is to receive this information and apply it in his or her life.

A teacher is a light because he or she illuminates the environment. The selfless teacher who is dedicated to teaching sees teaching as guidance, and being beneficial to his or her environment is his or her mission. A student is a receiver. The more the student can benefit from the teacher, the more knowledgeable the student will be. This metaphor is student centered because learning is subjective. If a student cannot filter the knowledge shaped by the teacher, then the information shared is dry and raw. Real learning occurs when students filter knowledge with the guidance of teachers.

Some student teachers also associated focuses of effective learning environments with student-centered approaches, including support of students’ development, students’ interests and needs, students’ individual differences, effective communication in the classroom, safe classroom environments, and enjoyable teaching and learning activities. Although these features reflect a student-centered approach, the student teachers’ responses indicated that these features were the necessary tools for the effective transmission of knowledge and for facilitating the shaping of students, instead of creating an effective learning environment in which students can construct their knowledge and meaning and that promotes their total development. Some examples follow:
A teacher is a guide, because teachers prepare students by educating them for society. The role of the teacher is to provide an active learning environment and encourage students to express their thoughts freely. The role of students is to take advantages of educational opportunities, to be people that help society, and to participate actively in classroom activities. If students express their thoughts freely, then they become individuals who are more helpful to society.

A teacher is a compass. It is the teacher who shows right and wrong to students who have just begun to recognize life. It is the teacher who gives direction to students’ lives. A teacher is like a big book in a big library; whenever students need it, they can use it. This metaphor is student centered because education must respond to the needs of each student individually. Students must take different things from teachers. A teacher’s task is to give students love and compassion when he or she is directing them.

Discussion and Conclusion

The results of this study showed that metaphor can be a meaningful tool for expressing and understanding student teachers’ beliefs and conceptions. The student teachers in this study produced and explained a range of metaphors that offered highly valuable information about their cognitive structure in terms of teaching. Although teacher education and elementary education programs in Turkey have since 1996 been restructured based on student-centered approaches, the study showed that most elementary student teachers produced teacher-centered ideas in their metaphors. It can be thus said that the teacher-centered approach is quite common among student teachers in Turkey. Other research has also reported similar findings (Leavy et al., 2007; Seung et al., 2011) and supported that student teachers’ beliefs and conceptions affect not only what they learn in education faculties, but also their behavior, decision making, and interpretation as they begin teaching (Richardson, 1996; Minor et al., 2002; Pajares, 1992; Weber & Mitchell, 1995). In this sense, there may not be optimism about the future implementation of student-centered education in elementary schools in Turkey, though such is an important part of education for elementary students’ academic and individual development. As a result, teacher educators should provide various opportunities involving different materials, teaching methods, and assignments in teacher education programs and model the student-centered approach so that student teachers can critically examine their beliefs and discover alternative educational possibilities.

Another important finding of this study was that the majority of participants did not have any consistent cognitive structure about teaching. This inconsistency emerged from misconceptions related mostly to guidance and active learning, a topic that requires more in-depth research, as well as to learning theories. In elementary teacher education programs in Turkey, student teachers take Educational Psychology (3 credits) that addresses human development and learning
theories. However, the context of the course may be too broad and elaborate for student teachers to understand in order to closely examine developmental and learning theories.

Participating student teachers also expressed the roles of teachers and students in their responses with stereotypical futures, including teachers as knowledge givers who know everything, students’ need to respect teachers, and teachers as social controllers who disseminate dominant cultural values. In the words of Britzman (1986), these stereotypical characteristics can be seen to embody cultural myths, and recognizing these misconceptions can help teacher educators to design courses, classroom discussions, and assignments that aid student teachers in developing new pedagogical knowledge and beliefs. In this sense, student teachers need to negotiate psychological, sociological, historical, and philosophical perspectives of education as a whole.

References


İlkokul Öğretmen Adaylarının Öğretmen Kavramına Yönelik Öğrenci Merkezli Ve Öğretmen Merkezli Eğitim Anlayışına Göre (Yanlış) Kavramsallaştırmaları

Atıf:
Doi: 10.14689/ejer.2015.60.16

Özet


*Araştırmının Amacı:* Bu araştırmanın amacı, Sınıf Öğretmenliği Anabilim dalında okuyan öğretmen adaylarının “öğretmen” kavramıyla ilgili inanç ve kavramsallaştırmalarını, “öğretmen ve öğrenci merkezli” eğitim anlayışları çerçevesinde anlamaya çalışmaktır.


Çalışmanın temel amacı için bütüncül bir yaklaşıma aydınlatılabilmesi için, nitel araştırma yöntemi kullanılmış, Öğretmen adaylarının öğretmen ve öğrencilerin rollerine ilişkin inançlarını açığa çıkarılmış, adayların bu rolere ilişkin kullandıkları “metaforlar” dan yararlanılmıştır.
Yaş ve cinsiyet gibi demografik değişkenleri de içeren bilgi formu, 45 dakikalık ders saatinde, dersin sorumlu öğretim elemanından izin alınarak öğretmen adaylarına uygulanmıştır. Öğrencilerle bilgi formu yanında, açık uçlu dört soru sorulmuştur. Öğrencilerden, öğretmeni tanımlayacak bir metafor üretmeleri, bu metafora dayalı olarak öğretmen ve öğrenci rollerini açıklamaları ve ürettiğleri metaforun öğretmen yada öğrenci merkezli eğitim perspektifinden hangisini daha çok temsil ettiği gerekçeleriyle birlikte açıklamaları istenmiştir.


Arastırmarnın Bulguları:

Bu araştırmada Sınıf Öğretmenliği öğretmen adaylarının “öğretmen”e ilişkin oldukça farklı metaforlar ürettiğini gözlemlemiştir. Üretilen 113 metafor içinde en sık kullanılanları; pusula (19), güneş (15), ışık (11), anne ve baba (10) ve heykeltıraş (8) metaforlardır. İçerik analizi sonuçları, öğretmen adaylarının “öğretmen”e ilişkin ürettiğini metaforlardan 99’unun öğretmen merkezi, 9’unun öğrenci merkezi, 23’unun ise hem öğretmen hem de öğrenci merkezli perspektifleri yansıttığını göstermiştir. Ayrıca “pusula”, “deniz feneri” gibi bazı metaforlar öğretmen adayları tarafından; hem öğretmen merkezi, hem öğrenci merkezi, hem de karma perspektifi yansıracak şekilde kullanılmıştır.


“Rehber” kavramı öğretmen adayları tarafından, öğrenciye ve öğrenci gelişimine yardımcıdır; yol gösteren, yön veren anlamında kavramlaşdırılmıştır. Benzer
şekilde “aktif öğrenme” ile ilgili de yanlış kavramlaştırma ile (n = 31) gözlenmiştir. Öğretmen adayları, sınıf içerisinde verme-alma ilişkisinde, öğretmenin öğrencilere sorumluluklar vererek aktifleştirdiğini ve böylece öğrencilerin bilgiyi aktif bir şekilde yapılandırıldıkları düşünülmektedirler.

Ayrıca, etkili öğrenme çevresi oluşturmayla ilgili bazı temel uygulamalar öğretmen adayları tarafından öğrencinin merkezli analayışa ilişkinle ilişkilendirilmiştir. Örneğin, eğlenceli ders işleme, öğrencilerin gelişimi destekleme, öğrencilerin ilgi ve ihtiyaçlarına odaklanma, bireysel farklılıklar, iletişim kurma ve güvenli öğrenme ortamı oluşturma gibi. Bu özellikler kuramsal olarak öğrencinin merkezli anlayışı yansımasıyla rağmen, öğretmen adaylarının bu noktalara vurgu yapmalarında; öğrencilerin anlamıyla zihinlerinde yapılandırımları üzerinden; öğrencileri bilgiyi daha etkili verme, öğrenciyi daha rahat şekilde öğrencileri araç olarak kullanmanın gerektiğini düşündüğü gözlenmiştir.

Araştırmanın Sonuçları ve Öneriler: Araştırma sonuçları göstermiştir ki, öğretmen adaylarının oldukça önemli bir kısmı öğretmen merkezli inançlara sahip olmalarına rağmen, kendilerini öğrencinin merkezli olarak algılamak eğilimindedirler.


Ayrıca özellikle birinci sınıf öğretmen adaylarının öğrenci ve öğretmen merkezli eğitim anlayışlarına dair bir anlayış sahip olmadıkları görülmektedir. Bu yüzden birinci sınıf öğretmen adaylarının eğitimde ilgili felsefi alt yapı oluşturabilmesi için, öğretmen eğitim programları yeniden gözden geçirilip gerekli düzenlemeler yapılabilir.

Sonuç olarak, öğretmen adaylarının çoğunluğunun öğretmen merkezli anlayışa sahip olmaları eğitim politikalarını tekrar gözden geçirmemiz gerektiğini düşündürmektedir. Ayrıca öğretmen adaylarının üstün bilişsel gelişimlerini destekleyecek, farkındalıkları artıracaq ortamlar yaratmanın önemli olduğu söylenebilir.

Anahtar Sözcükler: Öğretmen eğitimi, öğretmen adaylarının inançları, öğretim metaforları, öğretim yaklaşıması
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Nothing seemed so certain as the results of the early studies (Tatt, 2001, p. 445). It was precisely this level of apparent certainty, however, which led to a number of subsequent challenges to the techniques used to process the data (Jones & Wayne, 2002, p. 879). There were a number of fairly obvious flaws in the data: consistencies and regularities that seemed most irregular, upon close scrutiny (Aarns, 2003; West, 2003, p. 457).

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As Anderson and Bjorn (2003) illustrated in their recent study

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